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The New Trade Marks Act

FROM the very earliest days of industry the manufacturer of any particular class of goods has placed some type of mark upon the goods in order to signify to the purchaser their source of origin. Originally, the mark took the form of either a distinctive symbol or device or simply the manufacturer's name. In the latter case, a certain amount of confusion arose when the name was not unusual and it was a natural development for the goods to be given a name which was easily remembered and at the same time outstanding. Just as a nickname is often given to an individual with distinguishing personal qualities or whose name is not uncommon, for the purposes of differentiation and ready memorisation, in the same way and for similar reasons a trade name is given to a product. A trade name, every bit as clinging as the nickname, enables the purchaser, who has once bought the goods and found them satisfactory, to buy the same goods when making further purchases. A valuable goodwill is thus built up.

In the case of a manufacturer whose product has acquired such goodwill, rivals in his line of business may be tempted to injure the goodwill by marking their own goods with a mark, either a device or name, similar to that used by the original manufacturer, so that the public may be deceived into buying the goods under the impression that they were those of the original maker. As remedy, he had recourse to the courts. However, in order to avoid litigation, based essentially on a matter of opinion whether two marks were or were not sufficiently similar to deceive the public, the registration of trade marks was introduced in an Act of 1875. This Act has now been brought up-to-date by a new Trade Marks Act, which has just come into operation. As was to be expected from the long interval of time, and the industrial developments which have taken place, between 1875 and the present day, the new Act makes some substantial modifications of the old law. An admirable survey of the provisions of the Act was made by Mr. H. J. W. Bliss at a joint meeting of the Chemical Engineering Group with the London Section of the Society of Chemical Industry. It is only possible here to touch upon the more important of the modifications described in his paper. The persons entitled to use a registered trade mark have now been extended to include a new class, registered

users. The proprietor of the trade mark can apply to register another person as a user and, having done so, he is in no danger of losing his right to the mark on the ground that it does not represent goods made by one particular manufacturer. But there must be some form of trade relationship between the proprietor and user, such as, for instance, that between a parent company and a subsidiary; it is not permissible for anyone to invent a trade mark and sell licences of use indiscriminately.

There has been a modification in the actual procedure of registering a mark. The trade marks' register is divided into a number of classes which overlap and, in some cases, cover very varied types of goods. Attention has to be paid to the classes in which the mark for any specific goods should be registered, and whether the mark is valid for all such classes. The Register is now empowered to give the applicant advice in making his decision. Provision has also been made for defensive registration. The proprietor of a well-known trade mark can apply for registration for goods with which he is not concerned in marketing, without the mark being subsequently removed from the register on the grounds of non-usage. This only applies in the case of invented words already well known; for example, Kodak.

Perhaps the most important feature of the new Act is that dealing with the right to assign. Hitherto the trade marks and goodwill of a business had to be assigned together, but it has now been provided that trade marks are no longer tied to the goodwill and can be assigned separately, for instance, from a parent company to a subsidiary. Certification marks form a special class of marks for cases in which a trade association or other similar body certifies the quality and characteristics of the goods. These marks can only be used on complying with certain regulations. The register is divided into two parts, A and B. For class A registration the mark must be "adapted" to distinguish the goods concerned, and for class B the mark must be "capable" of distinguishing. The differentiation is hardly precise, but the fact remains that the rights given by part A are superior, with more stringent conditions of admission. In registering a new mark, it is advisable to apply for class A registration and fall back on class B if necessary.

These fine pavilions will show a variety of products, for which the skill and resources of the different countries of the Empire are responsible. They will, I hope, provide a meeting place for men and women of many nationalities where ideas can be exchanged and points of view explained.

*—H.M. the King in Opening
the Empire Exhibition.*

Notes and Comments

Opening of the Empire Exhibition

THERE is something different about the Empire Exhibition in Bellahouston Park, Glasgow, which was declared open by the King on Tuesday, and it is not difficult to lay one's finger on some of those features in which that difference lies. First of all it is situated in beautiful natural surroundings and is yet easily accessible by any of the means of modern transport—a rare combination in itself. It has been built on spacious lines with broad avenues and terraces and does not suffer from the fault of over-crowding so common to many exhibitions. The infinite care which has been taken in the design of the buildings and in the utilisation of the natural amenities of the park, have produced an exhibition possessing both dignity and vitality. Further, the exhibition is to all intents and purposes finished. The advantage of having an exhibition ready by the official opening day is obvious; nevertheless it does not often happen. In this issue we are publishing a general survey of the exhibition and details of the exhibits of interest to the chemical trade.

Second Thoughts on the Budget

FIRST impressions of the Budget as a hard and rather unimaginative solution of the financial problem of 1938 have quickly given way to another train of thought. The effect abroad of Sir John Simon's proposals for new taxation was profound and almost staggering. Foreign opinion was enormously impressed by the British Government's implicit reliance on the direct taxpayers of the nation to shoulder an even heavier portion of the cost of rearmament than they had expected to bear at this stage of the development of the scheme. The Budget was regarded in America and on the Continent of Europe as showing Great Britain in a determined and even confident mood. At home, too, the prophets of gloom had to eat humble pie more quickly than usual. The gilt-edged market did not flop, and the Stock Exchange generally maintained its previous levels. No organised outcry against the new taxation was perceptible in the country, and the House of Commons showed quickly by its tone in the debates that it accepted the Budget as a promoter rather than a destroyer of national credit and confidence. The absence of any serious effort to economise remained the only fly in the ointment.

Duty on Imported Soda Ash in India

THE existing concession to the glass manufacturing industry, by way of a rebate of duty on imported soda ash, has just been extended by the Government of India for two years. In 1935 the Government of India announced that they were unable to accept the finding of the Tariff Board in favour of protection to the glass industry owing to the absence at that time of indigenous supplies of essential raw materials of which one of the most important is soda ash. In anticipation of this deficiency being made good within the next few years by the proposed manufacture of soda ash at Khewra, no final decision was taken on the claim for protection, but it was decided in the meantime to afford the glass manufacturing industry a certain measure of relief by way of a rebate of duty on imported soda ash. This concession was sanctioned for a period of three years at the end of which period, if it appeared that a *prima facie* case for protection existed, it was intended to make a further reference to the Tariff Board. The pro-

duction of soda ash on a commercial scale has not yet developed either at Khewra or elsewhere in India. The concession sanctioned in 1935 is due to expire in June of this year, and no *prima facie* case exists for further reference to the Tariff Board. It appears, however, that there is still some possibility of the production of indigenous soda ash on a commercial scale being undertaken, and the Government of India have accordingly decided to extend the existing concession to the industry for a further period of two years, or if this is earlier, until they are satisfied that soda ash in commercial quantities is being produced in the country.

A Survey of the German Chemical Industry

AN interesting statistical survey of the position of the German chemical industry is given in the current bulletin of the Hamburg World's Economics Archives. Only 4 per cent. of the total of those employed in Germany are occupied in the chemical industry and yet they account for 1/12th of the German industrial production and 1/5th of German exports. Of the total share capital of 1,915 mil. R.M. in the industry, 800 mil. R.M. belongs to the share capital of the I.G. alone. The total production of the industry rose by about 20 per cent. from 1935 to 1936, total business yields by 15 per cent., net profits by 9.6 per cent. (indicating increased costs) and the average rate of dividends by 0.4 per cent. These favourable results are assumed to be assisted not only by the rising sales cycle for chemicals, but also by the fact that the chemical industry is either totally independent of foreign raw materials and semi-manufactured goods or can import them without difficulty owing to its high export ratio. The survey contains detailed figures for the liabilities, assets, profits and losses of eighteen leading German chemical companies.

Food Defence Plans

PREPARING the nation for a war-time emergency must go beyond the straightforward strengthening of the fighting forces and must embrace the complex question of so arranging the whole nation that it can meet an emergency at the shortest possible notice. It can readily be seen that considerations of the supply of foodstuffs must take first place in planning any such preparation scheme. For this purpose, the Food (Defence Plans) Department was set up towards the end of 1936, and the report of its operations down to the close of last year has been issued. It is clear from the report that considerable preliminary work has been done in obtaining statistics for the amount of each particular foodstuff required and the sources from which it can be obtained. Shadow schemes have been drawn up for ensuring an adequate distribution of foodstuffs and for regulating prices. But situated as we are with the very real danger of our food supplies from overseas being seriously interfered with in a future emergency, the matter essentially rests on storing and increasing home production. It is reassuring to learn from the Chancellor of the Exchequer that a beginning has been made by Government purchases of stocks of wheat, sugar and whale oil. Arrangements are also being made for increasing the production of home-grown agricultural produce, notably in the case of wheat, sugar beet and potatoes. It thus appears that at last an effort is being made to reduce the country's growing acreage of unproductive permanent grassland. Further Government grants and subsidies, similar to the lime and slag subsidy, form an effective means to this end.

The Empire Exhibition

A General Survey with Notes on Exhibits of Interest to the Chemical Trade

CONTROL of the Empire Exhibition, which will continue at Bellahouston Park until October, is vested in a council of management representative of municipal, industrial and cultural interests. It is, of course, backed by a guarantee fund of £750,000, and its objects are to illustrate the progress of the British Empire at home and overseas, to show the resources and potentialities of the United Kingdom and the Empire, to foster Empire trade and to emphasise to the world the peaceful aspirations of the British Commonwealth. With improving trade manufacturers are looking for new markets, and at Bellahouston Park has been erected a huge shop window for their goods—a mighty display of the Empire's industrial, commercial and cultural products.

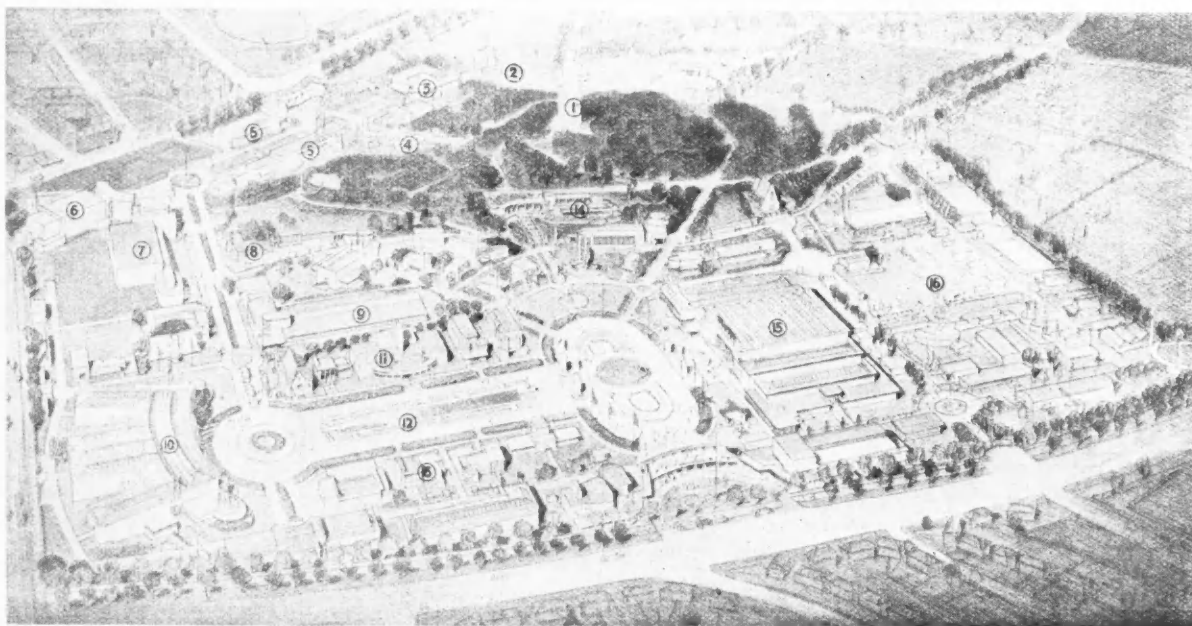
Covering 175 acres, the Exhibition is the biggest of its kind held anywhere in the world since the Wembley Exhibition of 1924-1925. But whereas Wembley was located some miles from the metropolis, the present exhibition has the great advantage of being situated practically in the heart of Glasgow, among the trees of the city's loveliest park. Renfrew Aerodrome, the docks and railway termini are within three miles, so that it is conveniently placed for visitors arriving by air, ocean liner, train or car. The charm of its natural setting—in contrast to the busy industrial city spreading itself on all sides—is one of the many striking features of the Exhibition. Trees abound; there are trees along the main avenues; woods crowning the hill around which the Exhibition is built; trees even growing inside the palaces. From the crest of the hill giant cascades, carved from the hillside and modelled in light, flow to the lake with its score of coloured fountains. Ambitious floodlighting arrangements accentuate the vast colour scheme of the whole Exhibition, making a picture, not only of individual buildings, but of the park in its entirety. Above all—an impressive focal point for the whole display—is the Tower, a 300 ft. hilltop skyscraper, whose observation galleries give visitors an impressive view

across into the Highlands and of the splendour of the grounds below.

The responsibility of planning the Exhibition has fallen on Mr. Thomas S. Tait, F.R.I.B.A., of Sir John Burnett, Tait and Lorne, who has so arranged that it is connected not only by a system of main and subsidiary avenues, but also by two giant staircases descending from the hill on the north and south sides, with cascades flowing between them. The colouring of the various buildings is in pastel shades of blue, red, yellow and a new tint known as French grey. The main avenues are surfaced with red asphalt, in which are embedded chips of white Skye granite and pink mica-veined Banffshire granite. There are over 100 palaces and pavilions and scores of smaller buildings.

The biggest building in the Exhibition is the Palace of Engineering, comparable in size to Buckingham Palace. It has a frontage of over 470 ft., a breadth of over 330 ft., and is 80 ft. high. Over 1,200 tons of steel were used in its erection and 8,000 tons of earth had to be removed for its foundations. It consists of a central bay 165 ft. wide, flanked by two smaller bays, each 60 ft. wide, surrounded on three sides by an annexe 30 ft. wide. The forecourt is occupied by a massive fountain. It is in this palace that are housed the exhibits of the heavy industries. In all there are 236 stands.

Scotland presents the past and present face to face with two magnificent pavilions directly opposite each other on the main avenue. One of these deals with the country's history and tells the tale of the old clan wars and life as it was lived hundreds of years ago; the other brings before visitors the living industries and culture of the modern Scotland. It is here that is shown how the country, with its development schemes, is planning ahead for the benefit of the community and nation as a whole. Of particular significance is the relief map of Scotland, sunk several feet below floor level and surrounded by a balustrade. This map represents planning in its



Lay-out Plan of Exhibition. 1.—The Tower. 2.—Highland Village. 3.—Palace of Arts. 4.—Grand Staircase and Cascades. 5.—Scottish Pavilions. 6.—Concert Hall. 7.—British Government Pavilion. 8.—Women of the Empire Pavilion. 9.—Palace of Industry, North. 10.—Palace of Industry, West. 11.—Dominions Avenue. 12.—Lake. 13.—Colonial Avenue. 14.—The Garden Club. 15.—Palace of Engineering. 16.—Amusement Park.

widest sense, showing industrial development, railway and coastal shipping routes, trunk roads, airways, hydro and electricity schemes, afforestation and universities. The ingenious use of multi-coloured neon tubes, press-button operated, brings the exhibit to life.

So magnificent is the Palace of Arts, built at a cost of £40,000, that, when the Exhibition closes, it will be retained by the City of Glasgow to house part of the corporation's art collection. It thus has the distinction of being one of the few permanent structures in the Exhibition. The galleries are built around a central courtyard, which is open to the sky, and the subjects are arranged in a retrospective Scottish section and a modern British section. Sculpture is shown in the courtyard, and there is a small black-and-white section.

An entrance hall 100 ft. high, leading to four great halls dealing with national health, coal, iron and steel and shipbuilding, is a feature of the United Kingdom Pavilion, in which various Government departments have co-operated to show what the central administration is doing to make life longer and happier and labour more congenial and efficient. The departments co-operating are the Department of Health, the Ministry of Agriculture and Fisheries and the Department of Scientific and Industrial Research. The pavilion has the distinction of having been designed by Mr. Herbert J. Rowse, F.R.I.B.A., who designed the Mersey Tunnel.

Some indication of the versatility of British manufacturing genius and the scope of modern trade is found in the fact that it requires two palaces to accommodate the exhibits of British industry. Together these palaces cover an area of nearly five acres. The principal classes under which the exhibits are housed are brushware, chemicals and drugs, cutlery, silverware, furniture, service and sales' organisations,

leather goods, paper, printing and publishing, scientific apparatus and general.

The Palace of Industry West is built on an unusual plan. It is in the form of an arc of a circle, with three portions radiating from the external radius of the building. It is interesting to note that although the palace is curved and vaulted not one curved steel member was used in the framework.

The Palace of Industry North was built to accommodate the applicants for space who could not be accommodated in the other building. So great was the demand that the plans had to be enlarged three times, and although it is in the nature of an annexe it is almost as big as the west palace.

Ranged along either side of the Dominions and Colonial Avenues are the palaces of the overseas Empire countries, which thus have a special section of the Exhibition to themselves, Canada, Australia, New Zealand, South Africa, Ireland, Southern Rhodesia and East Africa, Burma and West Africa are all represented, while a Composite Colonies Pavilion contains exhibits from British colonies and possessions in the East, Mediterranean, West Indies, Pacific and Atlantic.

It has been appreciated that many visitors to the Exhibition will come with specific problems to discuss or particular interests to study, and a conference hall seating nearly 2,000 has been provided in the main grounds. Smaller halls with seating capacities of from 100 to 500 are at the disposal of smaller conferences.

Altogether five miles of new roads have been made, and the services of gas, electricity, drains and water installed in the park are big enough to supply a permanent city of half-a-million inhabitants. There are 20 restaurants, a fire station, first aid station and post office.

Exhibits of Particular Interest

Government Pavilions

The *United Kingdom Government Pavilion* is the biggest of the national pavilions. It stands behind a lake which surrounds part of the building. A bridge leads to the entrance hall, which stands over 80 ft. high. The pavilion includes four exhibition halls; the exhibits in three of the halls have been organised by the Department of Scientific and Industrial Research. The aim of these halls is to demonstrate the part scientific knowledge and research is playing in the industrial life of the nation.

The first of the three halls is devoted to coal. The most prominent exhibit in the hall is a large working model of a coal mine over 200 sq. ft. in area and 15 ft. high, which has been especially prepared by the Mining Association of Great Britain, and is probably the finest model of its kind in the world.

The products of combustion from the burning of coal in a super power station, in good and bad industrial practice and in domestic heating, are displayed and contrasted. Some of the latest researches on domestic heating, which are being carried out in two special laboratories that have been erected at the Fuel Research Station and at the Building Research Station of the Department, are illustrated. The other side of the hall is devoted to an exhibit dealing with the use of coal in gasworks, coke ovens and low temperature carbonisation plants. The whole process of the treatment of coal by this means and some of the many by-products are shown. In the centre of the hall is an exhibit which deals with the use of coal as a chemical raw material. In this the various processes of obtaining oil from coal are shown and it is also shown how gases produced by passing steam over red hot coal or coke can be synthesised into motor spirit, industrial alcohol and other products. The use of coal as a raw material in the carbide industry, in the production of active carbon and in the making of electrodes is also illustrated.

The iron and steel hall contains a huge model of a blast furnace over 30 ft. in height. The furnace itself is in glass and reveals a red hot charge within and the molten iron at

the bottom apparently pouring out to the pig beds. The right-hand side of the hall is given over to the production of iron and steel from the ore to the finished product. Both the use of the microscope and of the X-ray apparatus in determining the structure of metals is demonstrated by experts. Finally, the ways in which steel is used for various engineering purposes is illustrated.

The other hall, in which the exhibits have been organised by the D.S.I.R., is devoted to the developments made by research in shipbuilding. The fourth hall in the pavilion is given over to a "Fitter Britain Exhibit."

The *Agricultural Research Exhibit*, in the *Agricultural, Fisheries and Forestry Pavilion*, illustrates some of the main lines of research in the fields of dairying, animal feeding and breeding, livestock disease control, fruit growing and land and crop improvement. In the dairying section there are exhibits which show some of the methods of chemistry and bacteriology in improving the flavour of butter and cheese and preventing them from deteriorating and contaminating, and the value of scientific research in the production of high quality condensed and dried milk.

A series of models in the *Land and Crop Improvement* section shows the application of chemistry to the problem of keeping the soil fertile. The exhibit illustrates the value of such processes as Adco manuring and ploughing in straw and treatment with lime, and shows some modern methods of determining the needs of a particular farm. In the *Forestry Commission Exhibit* the Forest Products Research Laboratory has co-operated with the Forestry Commission to provide a section illustrative of the work of the Laboratory as applied to home-grown timber, with examples of research in the testing and preservation of wood.

The bulk of the exhibits in the *Burma Pavilion* consist of timbers, agricultural products, artware, etc., but the *Burmah Oil Co.* have staged an exhibit illustrating their oil products, and the *Burma Corporation* an exhibit illustrating their silver, lead, zinc ores and by-products. The *New Zealand Pavilion* devoted to a display of the Dominion's industries, sports and tourist attractions, contains a range of samples of New

Zealand minerals, including asbestos rock, gold quartz, manganese ore, wolframite, copper ore, molybdenite and galena.

Southern Rhodesia being the third largest exporting country of asbestos in the world naturally gives considerable prominence to this material in its exhibits. Turner Bros. Asbestos Co., Ltd., show at the *Southern Rhodesia Pavilion* examples of the many uses to which asbestos is put. These examples include applications in the building industry, such as slates and tiles in different shapes, sizes and colours, sheets and panels, pipes and flooring; textile products, including yarns, fabrics and tapes; and jointings and packings. Samples of raw chrome ore from Southern Rhodesia are shown, together with a range of finished articles fabricated in stainless steel by the London Metal Warehouses, Ltd. Soya beans are grown extensively in the colony and the pavilion contains samples of soya bean products, provided by British Soya Products, Ltd. These are soya flour (Trusoy) for the manufacture of food products, oil used in the manufacture of paint, soap, printing ink, etc., and meal for cattle food and as fertiliser. Dioramas, photographs, models and specimens are used to illustrate the story of the progress of South Africa's art and industry in the *South Africa Pavilion*. There are special displays of gold and diamonds, with a comprehensive mineral exhibit, which contains, in particular, a series of chromium ores, chromium salts and chromium-plated articles.

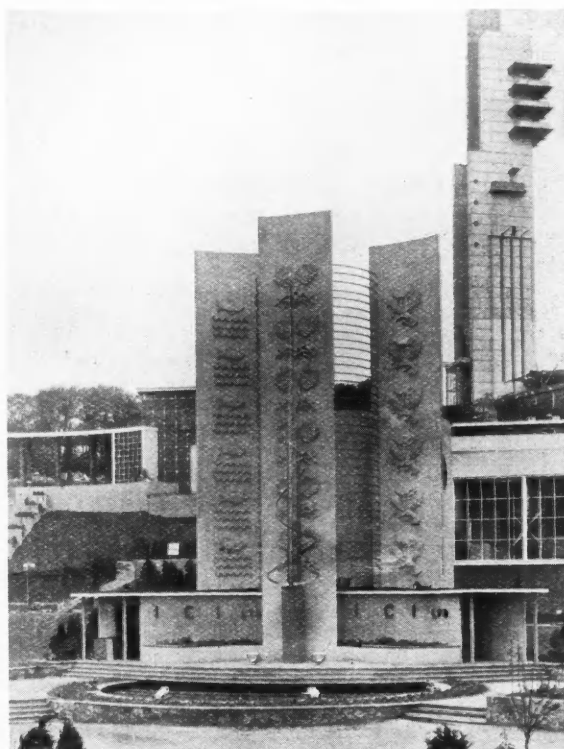
Represented in the Colonial Court are Malaya, the West Indies and a composite group of colonies, protectorates and dependencies. They are grouped round a central exhibit which illustrates their trade with Britain. Among the products of interest are Kenya pyrethrum flowers, Kenya geranium oil, Kenya lavender oil, Tanganyika petitgrain oil and Zanzibar better orange oil, Tanganyika petitgrain oil and Zanzibar clove stem oil. These were supplied by R. C. Treatt and Co. A sample is also displayed of prepared pyrethrum powder and liquid extract, which has been supplied by Stafford Allen and Sons, Ltd. A showcase containing some of the principal products of Cyprus contains products derived from the locust bean, such as sizes and toilet cream. Mangrove bark extract is one of the principal products of British Borneo and makes an excellent preservative for fishing nets. In blend with other extracts it provides a first-class tanning agent for leather. Samples of the material and products treated with it are displayed at the *Malayan Court*.

None of the other Government Pavilions and Colonial Courts contains exhibits of interest to the chemical trade.

Sites in the Grounds

The pavilion of the *Distillers Co., Ltd.*, designed by Mr. T. S. Tait, is one of the largest private pavilions in the Exhibition. The circular entrance hall, a notable feature of the building, shows the keynote of the whole display. Painted direct on to the walls are striking murals depicting symbolically the whole of the company's activities. In the centre, 27 ft. high, rises a steel and glass tower with neon illuminations. The main hall display is roughly divided into two groups, the potable spirit side of the company's interests and the industrial development.

In the industrial section it is possible to get a bird's eye view of the part played in industry to-day by ethyl alcohol. Its function as a raw material in synthetic chemical processes is demonstrated by a display of manufactured products. There is an interesting exhibit of the recently introduced thermoplastic material, Distrene; and examples of glass-clear mouldings in the form of spirals, rods, bowls and electrical accessories are shown. Two interesting yeast derivatives in the form of nucleic acid for pharmaceutical use and invertase concentrate are also shown. The Epok range of synthetic resins, both oil-soluble and thermo-hardening, have their place in this section. The durability of finishes made with the oil-soluble resins and the bonding strength of the thermo-hardening resins when used for impregnation of laminated wood, fabric or paper are illustrated. Three other industries,



A view of the central hill with the Pavilion of Imperial Chemical Industries in the foreground and the Tower of Empire beyond.

adhesives, building materials and motor spirit also have displays of their products in this section.

The *Dunlop Pavilion*, built to the design of Sir John Burnet, Tait and Lorne, demonstrates the 101 things made of rubber, a special feature being made of rubber products for industrial purposes. Under an archway of heavy suction hose appears a giant coil of conveyor belting standing 8 ft. above the ground, slowly revolving, and surrounded by examples of the numerous industrial uses of rubber, such as acid resisting pipes, cocks, valves, utensils, hose pipes, transmission belting, rubber rollers, mechanical rubber goods, etc.

The *Imperial Chemical Industries Pavilion*, to the architectural design of Mr. Basil Spence, features three pylons representing Earth, Air and Water, and raw materials of the chemical industry. Between these there rises a 200 ft. searchlight to represent the fourth element, Fire, and a fountain which, coloured by the light, symbolises the dyestuffs interests of the company. In the curved entrance hall various chemicals are displayed in a novel way by the ingenious use of lighting. Dyestuffs are suggested by an endless variety of colour patterns shown through fluorescent light. Two other exhibits show the light transmitting powers of the I.C.I. transparent plastic Perspex, in one of them the light being transmitted through an "S" bend tube. I.C.I. non-ferrous metal production is symbolised by an exhibit of what is apparently molten metal flowing into a design of tubes, wire and sheet. A huge plate-glass drum in the centre of the entrance hall represents the glass industry—one of the heaviest users of alkali. Dioramas illustrate some of the more interesting uses of I.C.I. products in agriculture and industry in the dominions and crown colonies. In the central hall on the ground floor is a display showing how industrial explosives from I.C.I.'s Ardeer factory are shipped to all parts of the world. In the upper gallery, octagonal in shape, the story of I.C.I. will be told under the headings of Man, Machine, Raw Materials, Research, Production, Distribution and Utilisation. Each of these is the subject of a mural painting.

The pavilion of *Chance Brothers and Co., Ltd.*, is designed

to exhibit some of the more important products of the company, such as rolled plate and figured glasses, globes, chemical laboratory ware, Calorex (heat-resisting glass), optical glass, etc. An interesting exhibit is an apparatus demonstrating the heat absorbing value of Calorex in relation to certain other kinds of glass.

Palace of Industry West

Although the palace contains a chemicals and drugs section the exhibits, with three exceptions, mainly comprise druggists' supplies.

The exhibit of *Boots Pure Drug Co., Ltd.* (Stands D41-42, D65-66) is staged to demonstrate the position of the company as chemical manufacturers, and includes a comprehensive range of their fine chemicals and special products for use in medicine, horticulture and many branches of technology. The most recent advances in chemotherapy include the use of sulphanilamide in the treatment of streptococcal infections, and this drug is among the products manufactured by the firm. Endocrine therapy has progressed rapidly during the last few years and Messrs. Boots have entered this field with their products Ovostab, Luteostab, Physostab and Antostab. The biological products insulin and pepsac, for the treatment of diabetes and pernicious anaemia respectively, are displayed together with specimens of the glands employed in their manufacture. Other products displayed on the stand are acriflavine, Ammoket, Neoket, Bismuth salts, chloroform, aspirin, potassium iodide, magnesium carbonate, chloramine, etc., and a range of special medical products. During the Exhibition there will be demonstrations of the sterile automatic filling of vials with medical products for injection.

The exhibit of *Chas. Tennant and Co., Ltd.* (Stand D68-69) is concerned with chemicals for industrial purposes, with particular reference to the heavy industries. The chemicals shown include plasticisers, solvents, fertilisers, formaldehyde, starch, glucose, bitumen and cement. *John and James White, Ltd.* (Stand D33) are displaying a range of chromium compounds. These include sodium, potassium and ammonium dichromate, chromium oxide, chromic acid, Chrometan crystals and chrome ore. Samples of limestone, alkalis, potassium chloride and ammonium sulphate are also shown.

Palace of Industry North

A very comprehensive range of the varied types of work undertaken by the *United Turkey Red Co., Ltd.*, is shown on Stands T61 and 62. As might be expected, there are included various examples of Turkey Red and African styles and there are also included various types of printing on cotton, linen, silk, artificial silk and wool—varying from dress goods to table covers and handkerchiefs. Dyed fabrics are also shown, chiefly on artificial silk, including cross dyed furnishing fabrics, and also the latest types of printing on oilsilk, lacquer printing and ciré embossing. An interesting feature is a handkerchief printed almost 70 years ago which is shown in conjunction with the most recent types of this work. Other examples include specimens of bleached goods of which the company does a wide range, and there are also examples of dyed yarns for export.

There are numerous show cases ranged along the wall space in both the West and North Palaces of Industry. The products shown are not, in general, of interest to the chemical trade, but that of *Turnbulls, Ltd.*, in the Palace of Industry North is an exception. This exhibit comprises specimens and tests of materials treated by the new Dri-Sol non-chlorine unshrinkable process for fabrics. There is also a chart showing the relative damage done to the fibres and a collection of dyed and finished fabrics.

Palace of Engineering

Weighing, counting and testing machines for all industries are exhibited on the stand of *W. and T. Avery, Ltd.* (Stand E84). Outstanding in the former group is an industrial visible weigher and totaliser which not only indicates the weight of

an individual load, but also totalises the weight of all loads which have passed over the machine. The Avery-Brownsdon wear-and-lubricant tester has been designed for measuring the relative wear resistance of metals and the lubricating qualities of oils. The method employed is to bring the periphery of a rotating wheel of one metal into frictional contact with a flat stationary sample of another metal, using a known grade of lubricant. The test is carried out under controlled conditions and the resulting impression in the flat sample is taken as a measure of relative wear or lubrication efficiency. On the stand of *Bakelite, Ltd.* (Stand E49) there are typical examples of Bakelite synthetic resin products, moulding materials, varnishes, lacquers, cements, spirit and oil soluble resins, laminated sheet, rod and tube, silent gear materials, laminated bearings and Bakelite veneers. A composite exhibit of the *British Plastics Federation, Ltd.* (Stand E151) illustrates, by means of photographs, diagrams and specimens, what plastics are and how they are manufactured.

A wide range of metal work, mainly in copper and brass in various forms, is shown by the *Birmingham Battery and Metal Co., Ltd.* (Stands E133-134). It includes seamless copper and brass tubes; condenser tubes in brass, cupro-nickel and aluminium brass; condenser plates in yellow metal and naval brass; condenser ferrules, copper and brass strip, plates, sheet, rods and wire. Especially large sized tubes and plates are shown, together with copper tubes and plates for welding.

The *British Aluminium Co., Ltd.*, has four extensive works in Scotland, and very naturally is taking part in the Empire Exhibition, occupying two stands there in the Palace of Engineering. Stand E38, centrally situated, carries a shop window display of various modern applications of the metal. The stand itself gives some idea of the architectural and decorative possibilities of aluminium, using various modern finishes. The exhibits on this stand include anodic finishes in silver and colours, silver and chromium plating upon aluminium and the course of aluminium production from raw material to pure metal, and the principal aluminium alloys. Stand E128/203 is designed to show the principal forms in which the metal and its light alloys are produced in the company's works. Interest is added to this stand by the provision of working exhibits. The *British Gas Federation* (Stands E1-2, E29-30) has arranged a big industrial gas exhibit, which is one of the largest and most comprehensive displays yet organised by the Federation. It contains numerous exhibits of furnaces, fans, boilers, burners, gas engines, air heaters, control instruments, etc.

Chance Bros. and Co., Ltd. (Stand E83) are showing examples of their latest products, along with their well-known glass silk for heat insulation and for various purposes connected with sound-deadening. The following are among the new products: Rigid sections for the insulation of pipes; cloth, tapes, yarns and slivers, some of which are of special composition rendering them suitable for industrial chemical filtration; sealed slabs for refrigeration and cold storage insulation; and filtration units for air conditioning apparatus. It is understood that a loom weaving cloth from glass fibres is to be seen in operation. *Clenzol, Ltd.* (Stand E199), show Clensol and Noricine descaling solution suitable for all types of industrial plant, and *Thos. Firth and John Brown, Ltd.* (Stand E113), carbon and alloy steel forgings for industrial purposes, with a special section for chemical and power production plant. Numerous castings are also shown, including those for crushing and grinding equipment and for general purposes.

Firth-Vickers Stainless Steels, Ltd. (Stand E96), are exhibiting corrosion resisting and heat resisting steel in the form of sheet, strip, bar, tube and wire as well as castings and forgings. Examples are also shown of fabricated chemical and dyeing plant and equipment. The exhibits of *Kelvin, Bottomley and Baird, Ltd.* (Stand E122), are mainly concerned with instruments for marine purposes, but they also include an apparatus for determining the fastness of colours to light, as well as fluorescence cabinets for examination of substances under ultra-violet radiation. On the stand of *George Kent*

and Co., Ltd. (Stand E66), there is almost every conceivable type of meter. These include Venturi, weir, flume, orifice and rotary water meters; orifice and shunt meters for steam and gas, ring balance meters for air and gas, potentiometric recorders and controllers for temperature, pH, conductivity and carbon dioxide; pneumatic and electrical controllers for pressure, flow and level and for automatic control of boilers.

The stand of the *Mond Nickel Co., Ltd.* (Stand E160), has two floors, the upper one being devoted to exhibits of a strictly technical nature. The ground floor exhibits include dioramas, working models, and transparencies illustrating some of the many applications of nickel alloys, presented in an interesting and non-technical manner. On the first floor photographs of the company's Research and Development Department's laboratories at Birmingham are on view, and the following are among the comparison exhibits of metallurgical interest:—Correct and incorrect casting of nickel silver; new Monel pickling baskets for comparison with baskets of the same material which have seen prolonged service; gas bottles in mild steel and nickel alloy steel; and chromium plated specimens with and without a nickel underlay, also parts showing (a) the value of adequate thickness of nickel on the base material, and (b) the influence of the initial surface preparation on adhesion.

On the stand of *Potts, Cassels and Williamson* (Stand E105), which is part of the exhibit of the Sugar Machinery Manufacturers, there is shown an exhibit of a 36 in. electric under driven hydro-extractor with fully automatic control and interlocking safety devices. A 36 in. suspended centrifugal is also shown which has been designed for the chemical trade. This is driven by electric motor, through hydraulic coupling giving any variation in speed from zero to full speed without altering the actual speed of the motor. *Redline-Glico, Ltd.* (Stand E143), are showing a comprehensive exhibit of petroleum and its products. In addition to motor spirits, lubricating oils and greases, there are samples of white spirits, rubber solvents and Decco turpentine substitute. A working model of the company's spirit refining and lubricating oil works is also to be seen on the stand.

Various types of oxygen apparatus, including cylinders of a special lightweight type, cutting and welding blowpipes, regulators, welding rods, goggles, etc., are shown by the *Saturn Oxygen Co., Ltd.* (Stand E153). There are also specimens exhibited of cutting and welding work which has been carried out with oxygen. The *John Thompson Engineering Co., Ltd.* (Stand E65, E85), display a heavy pressed dish end with shell plate welded thereto, as a demonstration of fusion welding. Among the numerous models shown on this stand are small scale reproductions of a "Beta" type water tube boiler, a Lancashire boiler and a super economic boiler. An 80 gallon stainless steel streamlined pan with mild steel jacket and a mild steel cooking retort 4 ft. in diameter, both made by John Thompson (Dudley), Ltd., are also shown. Packings and jointings for all pressures and temperatures of steam, liquids and gases are exhibited by *James Walker and Co., Ltd.* (Stand E93).

Watson, Laidlaw and Co., Ltd. (Stand E166-167), whose display is situated on the Sugar Machinery Manufacturers' stand, are showing three 42 in. suspended high speed centrifugal machines carried on one frame. These machines illustrate the three principal methods of driving, i.e., belt drive, water drive and electric drive. All the machines have special spindle heads of a new design which is aimed to give better control at high speed. A 36 in. self-contained electrically driven centrifugal as used principally for chemicals is also on view. This is fitted with a fluid flywheel in order to give variable speeds. There is also a 6 in. laboratory centrifugal, the basket of which is so mounted that it can be quickly removed and the results of tests examined in section. *Stewarts and Lloyds, Ltd.* (Stand E98-99, E110-111), are showing a selection of their wrought iron and steel tubes for all purposes, including high pressure steam pipes with Dawson joints.

The Chemical Engineering Group Annual Meeting and Dinner

THE annual general meeting, followed by the annual dinner, of the Chemical Engineering Group was held at the Waldorf Hotel, London, on April 29, the chair being taken at both functions by Mr. Stanley Robson (chairman of the Group).

At the annual meeting, the hon. secretary, in the course of his report, said that the past year had been one of progress and successful achievement. The high standard of quality of the papers read at the meetings had been maintained and the membership had shown a steady expansion. The Group had, during the past year, gained the largest increase in its membership for a number of years and it was to be hoped that this rate of progress would long continue. Referring to the question of a supplementary annual meeting of the Society to be held in the late summer of 1938 for the benefit of those who would not be travelling to Canada, it was pointed out that this had been discussed by an exploratory committee and the facilities of the group were offered for the organisation of this project. It has since been decided, however, to hold a meeting in Glasgow during the exhibition there and fresh arrangements will be made.

The following were elected to the General Committee: Mr. H. W. Cremer, Dr. W. Cullen, Mr. C. W. James and Mr. Stanley Robson. As officers for the ensuing year, the following were elected: Chairman, Mr. William Russell; hon. secretary, Mr. Julian M. Leonard; and hon. treasurer, Mr. F. A. Greene.

A hearty vote of thanks was accorded to Mr. Stanley Robson for his services as Chairman of the Group during the past three years.

There was a good company of members and guests at the nineteenth annual dinner which followed the annual meeting. The principal guest was Dr. J. J. Mallon (Warden of Toynbee Hall), who gave an address on "The English Point of View." This was following the practice of the past few years in having a talk on some topic not directly connected with chemical engineering by some prominent leader of thought on national affairs.

MR. W. RUSSELL (chairman-elect) proposed "The Society of Chemical Industry" and spoke of the close relationship now existing between the Group and the Society and of the assistance which the Society gives the Group.

LORD LEVERHULME responding, first thanked the members of the Society for the confidence shown in him by electing him for a second year as President, and then spoke of the forthcoming visit of the Society to Canada. Recalling that he was a Past-President of the Institution of Chemical Engineers, he said that although it might be going too far to say that the Institution was the child of the group, it was true to say that had there been no Chemical Engineering Group there would probably have been no Institution of Chemical Engineers. For it was the group which first made it clear that chemical engineering was a real science and a real branch of industry in itself and deserving of having an institution of its own. He said that the definition of chemical industry would be extremely vague and ill-defined were it not for the fact that the Society consisted of various groups dealing with various branches which were like signposts on an arterial road and enabled one seeking membership to find his way to that branch of chemical industry with which he was more particularly concerned.

The only other toast was that of "Our Guests" which was proposed by Mr. J. M. Macqueen and to which Dr. William Cullen responded.

MODERN LABORATORY EQUIPMENT

In the second paragraph of the article "Modern Laboratory Equipment" published on pages 349-350 of last week's issue, referring to glassware with standard interchangeable ground glass joints, we regret that we omitted to mention the fact that the text of the paragraph referred particularly to apparatus supplied by Quickfit and Quartz, Ltd.

British Association of Chemists

Annual Meeting of the London Section

THE 20th annual meeting of the London Section of the British Association of Chemists was held at Broad Street Station Restaurant on April 29, Mr. C. P. Gurr presiding. Miss WRIGHT (hon. secretary) in her report for the year, said that the increase in membership and prompt payment of subscriptions had resulted in an increased allocation from the central funds and although expenses were higher a substantial balance remained. There are at present 888 members of various grades in the London Section.

The following officers were elected: Chairman, Capt. R. P. Porter, B.Sc.; hon. secretary, Miss W. Wright, B.Sc., A.I.C.; assistant hon. secretary, W. Littlejohn; and hon. treasurer, J. C. Mellersh. The following were elected to the committee: H. R. S. Clotworthy, M.A., B.Sc., A.R.C.S.; F. B. Gatehouse, A.I.C.; S. Linfoot, B.Sc.; and W. S. Lloyd Willey.

MR. C. B. WOODLEY (general secretary) speaking on the current activities of the Association, referred to the value to the members of the Appointments Service, and spoke of the valuable advice which had been given on agreements through the Legal Aid Department. As to the Unemployment Insurance Benefit Fund, he said this had made remarkable progress in the past few years as a result of favourable industrial conditions.

A paper was read by Mr. J. P. Laurie on "Scientists and Mankind: What Individuals Can Do." Mr. Laurie said that the populace judged science by the way it affected both individuals and the various strata of society. Conversely, science itself was greatly affected by the manner in which it was regarded and treated by the populace. There were profound international and political pressures affecting the trends and uses of all the sciences and these must be examined and, if undesirable, eliminated. Continuing, he said that to tackle the root causes of the world's major evils called for combined effort. There was now in process of formation a society for the study of the social relations of science. This society would soon call for members, particularly active members, and it would at once commence, by the formation of groups in the co-ordination of existing groups, to probe and examine the many aspects of science affecting mankind and vice versa. Here was an excellent opportunity for the individual chemist and scientist to give his aid and he strongly urged support for this new society.

Ten Years Back

From "The Chemical Age," May 5, 1928

The National Association of Olive Growers of Spain, of Madrid, has organised a competition, having as its object the production of a short treatise on methods for the differentiation of pure olive oil from adulterated mixtures.

* * * *

Professor G. Schultz, head of the technical chemical laboratory at the Munich Technical High School, died at the end of April, aged 77. Before becoming professor of chemical technology at Munich in 1896, he was a member of the research staff of the Aktiengesellschaft für Anilin-fabrik, and later manager of a works in Basle. He was the author of Farbstofftabellen, a colour index which has become one of the classics of dyestuff literature, and of another well-known work, Die Chemie des Steinkohlenteers.

NEW GAS GENERATOR

With reference to the description of the new gas generator given on page 351 of last week's issue, the makers of this apparatus are the Scientific Glass-Blowing Co., of Manchester. It is necessary to point out that this is a Manchester company, as there is a firm in London of the same name, but there is no connection whatever between the two concerns.

Control of Algae and Slime Formations

Promising Results with Chlorophenols

ALGAE find especially favourable growth conditions in circulating cooling-water systems in connection with air conditioning and refrigeration, and must be controlled if the equipment is to operate efficiently, stated H. K. Nason and J. D. Fleming, of the Monsanto Chemical Co., in a paper read before a meeting of the American Chemical Society, on April 20. A relatively thin deposit of algal slime on heat-transfer surfaces will seriously affect the operating efficiency of the entire plant. Algae and slime formations can best be controlled by the addition of chemicals to the water. Chlorine and copper sulphate have been used extensively, particularly in drinking water supplies, for this purpose. These chemicals are not, however, entirely satisfactory for use in industrial cooling-water systems. Copper salts are relatively ineffective in alkaline waters (most cooling waters are alkaline), and are corrosive to many metals. Chlorine is vapourised rapidly and lost from water-spray systems, is less effective in alkaline waters than in those which are neutral or slightly acid, and requires expensive equipment for safe and efficient application.

The ideal chemical for industrial slime and algae control should be (1) highly toxic to the algae, protozoa and bacteria which cause slime formation, (2) relatively non-toxic to man and the higher animals, (3) non-corrosive to the metals used in engineering equipment, (4) non-volatile and stable on prolonged aeration, (5) readily available at a reasonable price, (6) easily handled and easily dissolved in water, and (7) easily fed into the water to be treated by simple equipment requiring a minimum of attention.

Since it seemed possible that materials meeting these requirements could be found in the field of synthetic organic chemicals, a large number of the more recent compounds were tested against several representative species of algae. Several promising materials were found, all of which were chemical derivatives of phenol. While phenol itself is only moderately toxic to algae, the addition of chlorine to the phenol nucleus gives a compound which is more toxic and the degree of toxicity increases as the amount of chlorine combined with the phenol molecule is increased. The most toxic organic chemical found was pentachlorophenol. While pentachlorophenol is only slightly soluble in water, its sodium salt, sodium pentachlorophenate, is quite soluble and this form is usually employed.

Practical tests, in which sodium pentachlorophenate was used in several industrial cooling-water systems, showed that the new chemical possesses the properties sought and is free of the disadvantages of the older inorganic chemicals. Further commercial tests have proved it to be a most effective industrial algacide.

A NEW TOUGH FILTER PAPER

A new filter paper of high strength has been introduced by J. Barcham Green and Son under the name "Green's 904." The wet strength of this paper is said to be about four times as great as that of ordinary filter paper and can be used under suction of high vacuum without breaking. It is very fast and retentive of fine precipitates and has a low ash (.0020 gram for a paper of 11 cms. circle). Further, it is claimed to be much more resistant both to strong acid and alkaline solutions than the usual filter paper and retains its matted fibrous texture when wetted, enabling precipitates to be removed without breaking the paper or mixing cellulose fibres with the precipitate. The quantity of liquid actually absorbed by the paper is less than with ordinary filter paper (the fibres of which become partially hydrated on wetting), so that the time spent in washing precipitates is substantially reduced.

Extensions of the Chesterfield Tube Co., Ltd.

Equipment of New Shops Nearing Completion

THE Chesterfield Tube Co., Ltd., manufacturers of weldless steel cylinders, bottles and tubes, whose works are located at Chesterfield, Derbyshire, have just completed the erection of new shops which are now being equipped with heavy tube-making plant of a size and power which is said to exceed that of any other of a like nature operating in the world at the present time. Such extensions were considered necessary owing to the recurring demands for all manner of hollow forgings of sizes and weights far in excess of the capacity of the company's present plant and to the constantly increasing use of gases, air and steam under high pressures for Government and commercial purposes.

Towards the end of 1936 the company decided to cater for this demand and have adopted a scheme of lay-out which will, without doubt, arouse interest and will at the same time add considerably to the company's existing large range of productions. This new installation will permit the manufacture of pierced and drawn weldless steel hollows of a size and weight hitherto unobtainable by the same process and will serve as an exceptional source of supply for a very wide range of products both to the home and export markets.

As the decision to lay down this plant coincided with the intensification of the Government's re-armament programme, it was inevitable that delays in the progress of installation should arise and furthermore when excavations for the

hydraulic cylinders are fitted for moving the container from under the press and ejecting the pierced blooms. The press, which is capable of producing a hollow forging 9 ft. long in one operation, has a total weight of approximately 850 tons.

The horizontal tube draw bench is also of the triple cylinder type and hydraulically operated. The maximum stroke is 40 ft. and hollow blooms of approximately 16 tons can be mandrel drawn. The drawbench has an overall length of 146 ft. and weighs approximately 510 tons. The furnace arrangements comprise bogie tunnel furnace of the multi-pass regenerative type with a temperature variation of 900° C. to 1,300° C., soaking pit furnace of the multi-pass regenerative type designed for a maximum working temperature of 1,500° C. and a tube re-heating furnace of the recuperative type.

The hydraulic power unit for piercing press and drawbench consists of three pumps each driven by 600 h.p. 6,000 volt, 3 phase synchronous motors. The pumps are arranged to run continuously when the plant is working.

The Bleaching of Lac

Investigation of the Chemical Changes Involved

A STUDY of the chemical changes undergone by the resin constituents of lac during bleaching with hypochlorite solution has been made recently at the Indian Lac Research Institute, Namkum. Bleaching is accompanied by an increase in the acid value and an apparent increase in the saponification value and ester value of lac. On making due allowance for the reaction between the chlorine present in bleached lac and the alcoholic potash used in saponification, real saponification and ester values can be calculated. The real saponification value of shellac is about 5 per cent. higher than that of unbleached lac, thus indicating an increase in the carboxyl groups due to oxidative changes brought about by the chlorine bleach. Aleuritic acid, a constituent of lac, does not appear to be affected by the bleach. The hydroxyl number generally decreases slightly on bleaching.

Chlorine enters into the resin molecules, and its content increases steadily as the lac is progressively bleached, while the iodine value decreases rapidly in the initial stages, and then tends to attain a minimum value. The chlorine in bleached lac exists only partly as an additional compound, the excess entering the molecule through substitution. The chemical changes, viz., oxidation and chlorination, are brought about in the resin molecules almost immediately on the addition of the bleaching agent, but the changes in the colouring matter, although proceeding simultaneously, take some time to attain completion.

When bleached lac is allowed to remain in the alkaline solution, after all the hypochlorite added has been consumed, the following changes take place, the extent of these changes depending upon the duration, temperature and pH. (a) The chlorine content decreases, the unsaturation increases due to splitting off of HCl and the colour of the bleached lac tends to return; (b) the acid value increases due to hydrolysis, consequently the ester value decreases; and (c) the saponification value appears to decrease slightly due probably to the splitting off of carbon dioxide from the carboxyl groups or due to removal of some acid constituent of lower molecular weight during washing.

A slower rate of attack of the resin molecules by a gradual addition of the bleaching liquor gives a product which is less prone to become insoluble than a rapidly bleached product. Higher alkalinity of the bleaching liquor and other conditions which bring about hydrolysis give a bleached lac which will have a longer life, but which will have the disadvantages of high acid value and poor colour.



View of the shops showing horizontal hydraulically operated tube draw bench and other equipment in course of erection.

foundations (which in some cases reached a total depth of 45 feet) were proceeding, seams of coal were encountered and much extra work by way of additional reinforcements and the insulation of the coal measures, had to be undertaken. The plant is, however, now approaching completion and it is hoped to have it in operation during July.

The manufacturing range will comprise, as standards, weldless steel products up to 40 in. outside diameter with a maximum length of 35 feet and also "specials" up to 52 inches outside diameter. The maximum billet or ingot weight that can be operated will be 16 tons and the weight of the heaviest finished product, approximately 12 tons. Weldless steel hollows of this calibre can be supplied readily for a considerable number of purposes, such as steam pipes for high pressure steam installations, high pressure bottles for the storage of liquefiable and permanent gases, cylinders for CO₂ converters, etc.

The new plant is being erected in a building consisting of two bays, the main bay measuring 660 ft. long by 100 ft. wide, and the small bay 615 ft. long by 50 ft. wide. The plant will consist of a vertical hydraulic billet piercing press of the triple cylinder type construction, of a maximum power to operate a billet or ingot of a weight of 16 tons. Auxiliary

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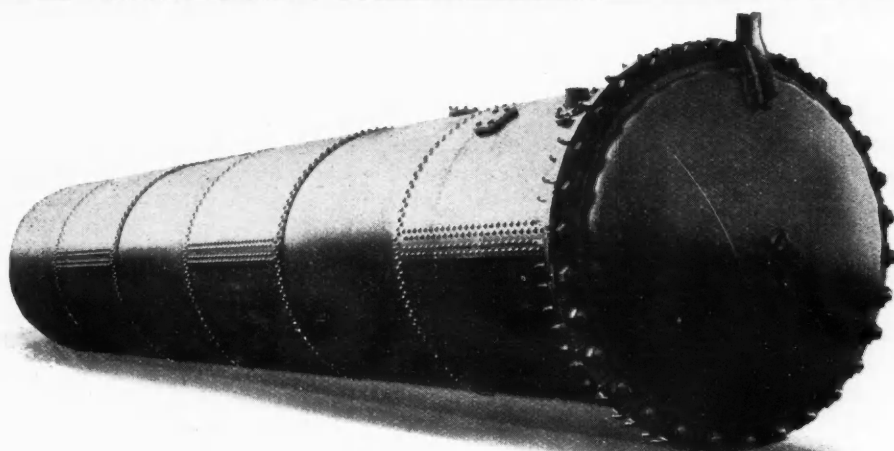
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The Chemical Age Lawn Tennis Tournament

Draw and List of Competitors

THE draw for the seventh annual Chemical Age Lawn Tennis Tournament was made on Tuesday, and full particulars, together with an alphabetical list of the competitors, are given in this and following pages. Except in the case of the finals, players drawn against each other must make their own arrangements for playing off the match on a court mutually agreed upon; in the case of semi-final round matches, this should be a neutral ground if possible. In the event of disagreement the first name drawn has the right to choose the ground. The best of three advantage sets will be played in each round; except in the semi-

finals and finals when the best of five sets will be played.

It is important that competitors should bear in mind the closing dates for the various rounds as shown at the head of each of the two draws. Results must be sent by the winners to the Editor of THE CHEMICAL AGE immediately after the match, and must in any case reach him not later than first post on the day following the final day for playing off the round.

While there will be no new draw for each successive round, a draw will be made for the right of choice of ground and competitors will be notified accordingly.

Alphabetical List of Players

The following alphabetical list indicates names of all competitors in The Chemical Age Lawn Tennis Tournament. Addresses and telephone numbers are given to facilitate communication between players.

- Allday, E. J. (Bakelite, Ltd., Redfern Road, Tyseley, Birmingham, 11. 'Phone: Acocks Green 1181).
- Barford, M. (B. Laporte, Ltd., Kingsway, Luton, Beds. 'Phone: Luton 892).
- Barnes, S. (The British Oxygen Co., Ltd., Angel Road, Upper Edmonton, N.18. 'Phone: Tottenham 2488).
- Bartram, J. H. (Nobel Chemical Finishes, Ltd., Wexham Road, Slough, Bucks. 'Phone: Slough 528 Ext. 70).
- Bispham, T. (Gas Light and Coke Co., Research Department, Fulham Works, King's Road, S.W.6. 'Phone: Fulham 5531).
- Blow, D. G. (The British Drug Houses, Ltd., Graham Street, City Road, N.1. 'Phone: Clerkenwell 3000 Ext. 23).
- Bones, S. E. (A. Boake, Roberts and Co., Ltd., 100 Carpenter's Road, E.15. 'Phone: Maryland 5511).
- Bowler, H. (Nobles and Hoare, Ltd., Cornwall Road, Stamford Street, S.E. 'Phone: Waterloo 4694).
- Chamberlain, W. (Murex Welding Processes, Ltd., Ferry Lane Works, Forest Road, Walthamstow, E.17. 'Phone: Larkwood 2284).
- Champkin, R. A. (B. Laporte, Ltd., Kingsway, Luton, Beds. 'Phone: Luton 892).
- Copp, C. G. (Doulton and Co., Ltd., High Street, Lambeth. 'Phone: Reliance 1241).
- Cosgrove, A. (British G.W.Z. Battery Co., Ltd., Trading Estate, Slough, Bucks. 'Phone: Slough 660).
- Crosse, F. G. (Society of Chemical Industry, Clifton House, Euston Road, N.W.1. 'Phone: Euston 5371).
- Darton, F. (J. Buchanan and Co., Ltd., 26 Holborn, E.C.1. 'Phone: Holborn 6183).
- Eastwell, J. S. (British Xylonite Co., Ltd., Hale End, London. 'Phone: Larkwood 2345).
- Eyres, A. F. (Johnson Matthey and Co., Ltd., 81 Hatton Garden, E.C.1. 'Phone: Holborn 6989).
- Floyd, E. G. (Doulton and Co., Ltd., High Street, Lambeth. 'Phone: Reliance 1241).
- Giltrow, L. (Williams (Hounslow), Ltd., Hamworth Road, Hounslow, Middlesex. 'Phone: Hounslow 1166 Ext. 8).
- Goudie, A. W. A. (Corn Products Co., Ltd., Bush House, Aldwych, W.C.2. 'Phone: Temple Bar 2091. Private No. Palmers Green 1750).
- Gough, C. C. (Lever Bros., Ltd., C.T.D./G. Dept., Port Sunlight, Cheshire. 'Phone: Rock Ferry 500 Ext. 111).
- Grape, L. F. (Borax Consolidated, Ltd., Regis House, King William Street, E.C.4. 'Phone: Mansion House 8331).
- Hammond, G. F. (Williams (Hounslow), Ltd., Hamworth Road, Hounslow, Middlesex. 'Phone: Hounslow 1166).
- Hancock, E. T. (Murex Welding Processes, Ltd., Hertford Road, Waltham Cross, Herts. 'Phone: Waltham Cross 1050).
- Hanson, G. A. (Whiffen and Sons, Ltd., Carnwath Road, Fulham, S.W.6. 'Phone: Fulham 0037).
- Haughton, G. (Johnson Matthey and Co., Ltd., 78 Hatton Garden, E.C.1. 'Phone: Holborn 6989).
- Hawkes, R. (B. Laporte, Ltd., Kingsway, Luton, Beds. 'Phone: Luton 892).
- Herridge, W. H. (British Xylonite Co., Ltd., Hale End, London. 'Phone: Larkwood 2345).
- Hinchcliffe, P. E. (Borax Consolidated, Ltd., Regis House, King William Street, E.C.4. 'Phone: Mansion House 8331).
- Hives, R. E. (Cement Marketing Co., Ltd., Tothill Street, S.W.1. 'Phone: Whitehall 2323).
- Hole, G. W. (Anglo-Saxon Petroleum Co., Ltd., St. Helen's Court, E.C.3. 'Phone: Avenue 4321 Ext. 107).
- Hoppe, W. (Johnson Matthey and Co., Ltd., 78 Hatton Garden, E.C.1. 'Phone: Holborn 6989).
- Hudson, J. (Bakelite, Ltd., 68 Victoria Street, S.W.1. 'Phone: Victoria 5511).
- Hughes, A. E. (Limmer and Trinidad Lake Asphalt Co., Ltd., Steel House, Tothill Street, S.W.1. 'Phone: Whitehall 6776 Ext. 107).
- Jones, J. I. T. (Mond Nickel Co., Ltd., Thames House, Millbank, S.W.1. 'Phone: Victoria 5353 Ext. 8).
- Killick, A. A. (B. Laporte, Ltd., Kingsway, Luton, Beds. 'Phone: Luton 892).
- King, Maurice (Howards and Sons, Ltd., Uphall Works, Ilford, Essex. 'Phone: Ilford 3333).
- Lacy, E. D. (Murex Welding Processes, Ltd., Ferry Lane Works, Forest Road, E.17. 'Phone: Larkwood 2284).
- Lewis, W. R. (British Oxygen Co., Ltd., Angel Road, Upper Edmonton, N.18. 'Phone: Tottenham 2488).
- Lusty, H. H. (Bakelite, Ltd., 68 Victoria Street, S.W.1. 'Phone: Victoria 5511).
- Marcas, A. S. (Bovril, Ltd., 152 Old Street, E.C.1. 'Phone: Clerkenwell 2202).
- Maronge, L. A. (Bakelite, Ltd., 68 Victoria Street, S.W.1. 'Phone: Victoria 5511).
- Martin, C. H. (Nobel Chemical Finishes, Ltd., Wexham Road, Slough, Bucks. 'Phone: Slough 528 Ext. 70).
- O'Connor, F. (Murex Welding Processes, Ltd., Ferry Lane Works, Forest Road, Walthamstow, E.17. 'Phone: Larkwood 2284).
- Parkes, J. W. (Bakelite, Ltd., Redfern Road, Tyseley, Birmingham, 11. 'Phone: Acocks Green 1181).
- Pavitt, E. (Co-operative Wholesale Society, Ltd., Drug Works, Greenside Lane, Droylsden, Manchester. 'Phone: Droylsden 1348).
- Plant, J. H. G. (Gas Light and Coke Co., Research Dept., Fulham Works, King's Road, S.W.6. 'Phone: Fulham 5531).
- Porter, Ronald (Howards and Sons, Ltd., Uphall Works, Ilford, Essex. 'Phone: Ilford 3333).

- Pugh, G. (The British Oxygen Co., Ltd., Angel Road, Edmonton, N.18. 'Phone: Tottenham 2488).
- Rolfe, G. L. (Brandhurst Co., Ltd., Vintry House, Queen Street Place, E.C.4. 'Phone: Central 1411).
- Shead, H. L. (General Aircraft, Ltd., London Air Park, Feltham, Middlesex. 'Phone: Feltham 2604).
- Shoyer, Ernest G. (Borax Consolidated, Ltd., Regis House, King William Street, E.C.4. 'Phone: Mansion House 8331).
- Sleap, R. J. (United Yeast Co., Ltd., 238-240 City Road, E.C.1. 'Phone: Clerkenwell 2040 Ext. 3).
- Smith, C. G. (Shell-Mex and B.P., Ltd., Strand, W.C.2. 'Phone: Temple Bar 1234 (Buying Dept.).
- Temple, A. L. (Lever Bros., Ltd., Port Sunlight, Cheshire. 'Phone: Rock Ferry 500 Ext. 111).
- Thedford, Clifford (Monsanto Chemicals, Ltd., Ruabon, Denbighshire. 'Phone: Ruabon 3).
- Thomsett, E. A. (The British Oxygen Co., Ltd., Angel Road, Edmonton. 'Phone: Tottenham 2488.)
- Tickner, A. H. (British Celanese, Ltd., Hanover Square, W.1. 'Phone: Mayfair 8000 Ext. 259).
- Triggs, R. E. (Murex Welding Processes, Ltd., Ferry Lane Works, Forest Road, Walthamstow, E.17. 'Phone: Larkwood 2284).
- Tunstall, P. A. (Salt Union Ltd., 20 Water Street, Liverpool. 'Phone: Central 4370).
- Wakeman, W. (Johnson Matthey and Co., Ltd., 78 Hatton Garden, E.C.1. 'Phone: Holborn 6989 Ext. 16).
- Walker, C. W. E. (I.C.I. (Fertiliser and Synthetic Products), Ltd., Billingham, Co. Durham. 'Phone: Stockton-on-Tees 53601).
- Walker, J. E. (National Farmers' Union, 45 Bedford Square, W.C.1. 'Phone: Museum 7526).
- Whittaker, Edwin (A. C. Wells and Co., Ltd., Carnarvon Street, Cheetham, Manchester 3. 'Phone: Blackfriars 8044. Private No. Cheetham Hill 1886).
- Williams, Idris (Monsanto Chemicals, Ltd., Ruabon, Denbighshire. 'Phone: Ruabon 3).
- Williams, R. M. O. (Imperial Chemical Industries, Ltd., Thames House, Millbank, S.W.1. 'Phone: Victoria 4444 Ext. 921).
- Williams, T. P. (Lever Bros., Ltd., C.T.D/G. Dept., Port Sunlight, Cheshire. 'Phone: Rock Ferry 500 Ext. 113).
- Willshire, A. E. C. (Borax Consolidated, Ltd., King William Street, E.C.4. 'Phone: Mansion House 8331).
- Wilson, J. S. (British Celanese, Ltd., Hanover Square, W.1. 'Phone: Mayfair 8000 Ext. 259).
- Wood, R. J. (The British Drug Houses, Ltd., Graham Street, City Road, N.1. 'Phone: Clerkenwell 3000 Ext. 23).
- Woollard, J. K. (Murex Welding Processes, Ltd., Hertford Road, Waltham Cross, Herts. 'Phone: Waltham Cross 1050).
- Wyrill, H. G. (Ever Ready Co. (Gt. Britain), Ltd., 95a Carysfort Road, Clissold Park, N.16. 'Phone: Clissold 6257. Private No. Speedwell 6020).

The Chemical Age Lawn Tennis Tournament

The Draw—Men's Doubles

Players drawn against each other must make their own arrangements for playing off their match on a court mutually agreed upon. In the event of disagreement the first drawn shall have the right to choose the ground. The asterisk (*) indicates the first name drawn in the initial stage. Best of three advantage sets, except in the case of the semi-finals and final.

FIRST ROUND Results to be notified by May 30	SECOND ROUND Results by June 20	THIRD ROUND Results by July 11	SEMI-FINAL Results by August 16	FINAL September 3
Clifford Thedford and Idris Williams	bye			
T. P. Williams and C. C. Gough	bye			
J. W. Parkes and E. J. Allday	bye			
*G. F. Hammond and L. Giltrow				
Ronald Porter and Maurice King				
*W. R. Lewis and S. Barnes				
R. J. Sleap and F. Darton				
*J. I. T. Jones and R. M. O. Williams				
G. Haughton and W. Wakeman				
*A. S. Marcar and F. G. Crosse				
R. Hawkes and M. Barford				
*A. H. Tickner and J. S. Wilson				
L. A. Maronge and J. Hudson				
*W. H. Herridge and J. S. Eastwell				
J. H. Battram and C. H. Martin				
*E. G. Floyd and C. G. Copp				
A. E. C. Willshire and L. F. Grape				
*F. O'Connor and E. D. Lacy				
R. E. Triggs and W. Chamberlain				
*G. W. Hole and C. G. Smith				
R. A. Champkin and A. A. Killick				
*R. E. Hives and A. E. Hughes				
A. F. Eyres and W. Hoppe				
J. H. G. Plant and T. Bispham	bye			
D. G. Blow and R. J. Wood	bye			
J. K. Woollard and E. T. Hancock	bye			

The Chemical Age Lawn Tennis Tournament

Men's Singles

Players drawn against each other must make their own arrangements for playing off their match on a court mutually agreed upon. In the event of disagreement the first name drawn shall have the right to choose the ground. The asterisk (*) indicates the first name drawn in the first round only. Best of three advantage sets, except in the case of the semi-finals and final.

FIRST ROUND	SECOND ROUND	THIRD ROUND	FOURTH ROUND	SEMI-FINAL	FINAL
Results to be notified by May 30	Results by June 20	Results by July 11	Results by August 2	Results by August 22	September 3
C. W. E. Walker	bye				
E. Pavitt	bye				
A. L. Temple	bye				
Edwin Whittaker	bye				
Clifford Thedford	bye				
C. C. Gough	bye				
P. A. Tunstall	bye				
T. P. Williams	bye				
J. W. Parkes	bye				
*H. G. Wyrill					
Ernest G. Shoyer					
*L. F. Grape					
F. G. Crosse					
*Gerald Pugh					
J. E. Walker					
*J. I. T. Jones					
R. J. Sleaf					
*F. Darton					
P. E. Hinchcliffe					
*W. Hoppe					
A. Cosgrove					
*A. S. Marcar					
A. F. Eyres					
*G. L. Rolfe					
G. F. Hammond					
*L. Giltrow					
D. G. Blow					
*A. W. A. Goudie					
E. D. Lacy					
*A. H. Tickner					
W. Wakeman					
*E. A. Thomsett					
H. H. Lusty					
*S. E. Bones					
G. Haughton					
*Ronald Porter					
R. A. Champkin					
*G. W. Hole					
E. T. Hancock					
*R. M. O. Williams					
J. H. G. Plant					
*S. Barnes					
H. Bowler					
*H. L. Shead					
A. E. Hughes					
*R. J. Wood					
C. G. Copp					
*W. R. Lewis					
J. K. Woollard					
A. A. Killick	bye				
L. A. Maronge	bye				
G. A. Hanson	bye				

Personal Notes

MR. R. G. FFOULKES-JONES has been appointed assistant petroleum technologist in the Colonial Service at Trinidad.

MR. F. CHANTRY, a director of the Sheffield Climax Steel Co., Ltd., steel manufacturers, left estate valued at £1,350 (net personality £121).

MR. J. L. MILNE has been elected chairman of the Rubber Growers' Association, and MR. F. E. MAGUIRE vice-chairman, for the ensuing year.

MR. WILLIAM EWING MOODIE, retired technical chemist, who resided formerly at Alexandria, Scotland, and latterly at Harrow, left estate valued at £3,197.

MR. THOMAS OLDROYD, of London and formerly of Leeds, head of William Oldroyd and Sons, Ltd., glue and gelatine manufacturers, left estate valued £35,731, with net personality £35,573.

MR. F. W. CHAMBERS, a director of the Phoenix Oil and Transport Co., and of Phoenix Oil Products, Ltd., has been elected chairman of these companies in place of the late Mr. Leopold Albu.

MR. FRANCIS PEGLER, chairman and managing director of the Northern Rubber Co., and managing director of Peglers, Ltd., brassfounders, left estate valued at £84,935 (net personality £79,380).

COLONEL ARTHUR CHARLES DAVIS, managing director of Associated Portland Cement Manufacturers, has been elected Alderman of Broad Street Ward of the City of London, in succession to the late Alderman Sir Stephen Killick.

DR. R. LESSING has been re-appointed Chairman, and DR. A. J. V. UNDERWOOD honorary secretary, of the London Section of the Society of Chemical Industry for the session 1938-1939. MR. J. O. CUTTER, MR. H. HOLLINGS and MR. C. W. JAMES have been elected to the committee of the section.

LORD EUSTACE PERCY was elected president of the Royal Institution at the annual meeting of the Institution on Monday. SIR ROBERT ROBERTSON was elected treasurer, and among the managers elected were DR. F. H. CARR, PROFESSOR A. C. G. EGERTON, LORD FALMOUTH and PROFESSOR J. C. PHILIP.

MR. J. G. HAY, who went to Bangkok in February on behalf of the International Rubber Regulation Committee to negotiate the question of Siam's rubber quota, contracted malaria when ready to sail on the return journey from Singapore and was admitted to hospital. He is the London managing director of Guthrie and Co., Ltd.

PROFESSOR A. D. ROSS, of the Chair of Physics in the University of Western Australia, has been appointed Acting Vice-Chancellor of the University during long-service leave granted to Emeritus-Professor H. E. Whitfield. Dr. Ross was at one time Lecturer in Natural Philosophy in the University of Glasgow, and was the first to receive the Kelvin Medal and Prize for research in physical science.

MR. WILLIAM FRANCIS KENRIE WYNNE-JONES, B.Sc. (Wales and Oxon.), D.Sc. (Wales), of the University, Reading, has been appointed to the Chair of Chemistry in University College, Dundee, which will become vacant on September 30 next, by the retirement of Professor Alexander M'Kenzie. The University Court of St. Andrew's have also appointed MR. J. NORMAN DAVIDSON, B.Sc., M.B., Ch.B. (Edinburgh), to the vacant lectureship in biochemistry in University College, Dundee.

OBITUARY

MR. WILLIAM FORSTER, manager of Langley Park Coke Ovens has died after a brief illness. He was 59 years of age.

MISS EVA BAILY, a biochemist at Edinburgh Royal Infirmary, was killed on Sunday through a fall while climbing Scafell.

MR. WILLIAM ROBERT FELDTMANN, who died at Cape Town recently, at the age of 73, went to South Africa and became chief metallurgist to the African Gold Recovery Co. in connection with the McArthur-Forrest cyanide process. From 1903 to 1923 he was in practice in London. He was a member of the Institution of Mining and Metallurgy, and served on the council and as a vice-president. He was also a past-president of the Chemical, Metallurgical and Mining Society of South Africa.

Foreign Chemical Notes

Russia

The first Russian bismuth-producing plant is being put into operation at the Czimkent Lead Works.

Switzerland

The Society of Chemical Industry, Basle, increased its net profit in 1937 to 5.18 million francs (previous result 4.61 million francs) and dividend is unchanged at 20 per cent.

France

The Société d'Exploitation des Procédés P.O.C. (50, rue de Chateaudun, Paris), capital 600,000 francs, has been formed to engage in the marketing, etc., of decolorising and absorbent carbons.

Japan

Production of casein wool has been commenced at Hongu, in Korea, by the Japanese Nitrogen Fertiliser Co.

Large-scale production of urea is being commenced by the Sumitomo Chemical Industry Company.

Russia

Phenyl boric acid is reported to be an excellent preserving agent for stored potatoes following experiments by the Institute for the Spirit Industry. Tests are also being carried out with nitrophenyl boric acid which may find application as a preservative for various agricultural products.

Czechoslovakia

Gas marks and filters are to be made by the Pala A.G. of Schlan.

The Fatra A.G. of Napajedl has now commenced manufacture of rubber toys and numerous other classes of rubber goods.

Germany

A large factory ship for processing of sharks is to be put in commission by the newly-formed Hamburg concern, the Tropische Hai- und Grossfischfangreederei G.m.b.H. Among the materials to be produced are shark's liver oil and shark-skin leather.

A small wood saccharification plant and research laboratory is to be installed at Lowenberg (Silesia) by the Chemische Fabrik Dr. Warth and Co. On the results obtained will depend a plan for erecting 5 or 6 large-scale plants in Silesia.

For working with moist hydrofluoric acid, the synthetic plastic material, Trolitul (polystyrol), has been found most satisfactory by Dr. K. Holm (*Chemische Fabrik*, 1938, No. 17/18). This plastic is obtainable as glass-clear sheets, rods and tubes which can be easily worked by sawing, drilling and filing. By attaching variously shaped lengths it is possible to prepare laboratory apparatus such as T-pieces and vessels of different shapes. Trolitul softens at 85° C. The parts of a Trolitul apparatus for vacuum work can be assembled by softening the ends with benzene (which is a solvent for the material) and keeping them in contact for several hours.

From Week to Week

THE INTERNATIONAL SUGAR COUNCIL have decided to reduce the current year's export quotas by 5 per cent.

EXPORTS OF RAW MATERIAL from the United States during March were \$47,030,000, compared with \$48,210,000 in February. Imports were \$51,170,000, compared with \$46,700,000.

VICTOR BLAGDEN AND CO., LTD., announce that on and after May 7, their head office address will be: Plantation House, Mining Lane, London, E.C.3. Telephone No.: Avenue 2901. (Telegrams: Blagdenite, Fen, London).

NEGOTIATIONS ARE IN PROGRESS under which the sugar-refining business of Macfie and Sons, Ltd., will be transferred to the Liverpool refinery of Tate and Lyle, Ltd., who will acquire the ordinary capital of Macfie and Sons, Ltd.

GJERS, MILLS AND CO., LTD., Middlesbrough, have given notice to 500 employees to terminate their engagements. Because of the shrinkage of the demand for East Coast hematite pig iron, the firm are closing the three blast furnaces at their Ayresome ironworks, Middlesbrough.

NEWTON, CHAMBERS AND CO., LTD., of Thorncliffe Ironworks, near Sheffield, is to carry on exclusively in Great Britain the Lithcote process of the Lithcote Corporation, of Chicago, for lining metal vessels with an acid-resisting and non-corrosive plastic material which does not give any taste or odour to products in processing or storage.

THE WELLFIELD SHEET WORKS at Llanelly, owned by Richard Thomas and Co., the Welsh steel and tinplate combine, restarted on Monday, after being idle for three months. The South Wales steel works at Llanelly owned by the same company are to close down for an indefinite period. Only four furnaces out of 11 have been in operation since February. The company's bar mill and tinplate works at Grovesend have also been closed.

THE DEPARTMENT OF SCIENTIFIC AND INDUSTRIAL RESEARCH issued on Monday, Fuel Research Survey Paper No. 43, dealing with the Stockings Seam of South Derbyshire. The paper is obtainable from H.M. Stationery Office (price 2s. net). These papers deal exclusively with matters connected with the physical and chemical survey of the national coal resources, which has for its object the provision of the detailed and accurate data necessary for the most advantageous use of the coal seams of the country.

KESTNER VALVES FOR CORROSIVE LIQUORS are described in a new leaflet issued by the Kestner Evaporator and Engineering Co., Ltd. The Kestner "free-flow" valve is made with a cast R.K. alloy body, and an acid-resisting gunmetal screw and bridge. R.K. metal is a special lead antimony alloy equal in chemical resistance to chemical lead and having a tensile strength of over 7 tons per sq. in. The valve spindle is made in steel covered with R.K. metal giving great strength and ensuring long life of the working parts. Every valve is guaranteed to stand a working pressure of 30 lb. per sq. inch. Valves for higher pressures are available. The Kestner-Saunders glandless valves embody the well-known features of the Saunders Patents, including the streamlined passages for the liquor flow and glandless, leakproof diaphragm. In general, Kestner "free-flow" valves are used for sulphuric acid, chromic acid, etc., and for all conditions where lead is satisfactory and Kestner-Saunders glandless valves for hydrochloric acid at any strength, organic acids, dye liquids, brine, sulphuric chloride, acetic acid, etc., and wherever metallic contamination is to be avoided.

THE INSTITUTE OF CHEMISTRY announces the following pass list for the March-April examinations. Examinations in General Chemistry for the Associateship: Archer, F. S.; Billingham, A.; Brownlee, G. W., Ph.C.; Carter, H. G. C.; Cunliffe, W. B.Sc. (Lond.); Edmonson, A. N.; Ford, H.; Forrester, R. E.; Goodrick, C. E. M., B.Sc. (Lond.); Greig, E. I., Ph.C.; Hunter, W., B.Sc. (Lond.); Jacobs, J. M.; Jacobs, S., B.Sc. (Lond.); Jones, H. A.; Jones, R. A., B.Sc. (Lond.); Lambert, E. W., M.A. (Cantab.), M.Sc. (Lond.); Lowe, R. C. H., B.Sc. (Lond.), A.M.C.T.; Marshall, A. T., B.Sc. (Lond.); Matthews, C. W.; Morris, G. O.; Pallister, Miss S., B.Sc. (Lond.); Porter, G. V., B.Sc. (Lond.); Read, D. R.; Reeson, W. B., A.M.C.T.; Roberts, D. K.; Roberts, F. W.; Rumens, M. J.; Wilkinson, P. A.; Williams, E. G., B.A. (Cantab.); Wood, F.; Young, W. H. Examinations for the Fellowship: In Branch B: Physical Chemistry: Cuthill, R., Ph.D. (Leeds); in Branch C: Organic Chemistry, with special reference to Oils, Fats and Waxes: Emlyn, J. A.; in Branch E: The Chemistry, including Microscopy, of Food and Drugs, and of Water: Cavell, A. J., M.Sc. (Lond.), A.R.C.S., D.I.C.; Perry, Miss H. M., M.Sc. (Lond.); Read, F. E., B.Sc. (Lond.), B.Pharm., Ph.C.; Vale, A. L., B.Sc. (Lond.); in Branch G: Industrial Chemistry, with special reference to Chocolate, Cocoa and Confectionery: Morris, R. W., B.Sc. (Lond.), A.C.G.S.C., D.I.C.; with special reference to Coal Tar and Ammonia Technology: Perkins, G., B.Sc. (Lond.); with special reference to paper: Currie, H. T.; with special reference to Cement: Colegrave, E. B., B.Sc. (Lond.).

PRESIDENT VARGAS OF BRAZIL has issued a decree nationalising the oil-refining industry for both imported and national oil.

THE LENNOX FOUNDRY CO., LTD., has issued a new leaflet describing the Lennox Duo-Seal high vacuum cock. The practice of sealing the gland of a vacuum cock with oil or mercury has a number of faults, in particular the fact that the sealing liquid can be drawn through the gland into the pipe-line. The trouble is overcome with the Lennox "Duo-Seal" by means of an ingenious double seal.

"CORROSION BY GASES IN TECHNICAL CHEMISTRY, AND ITS PREVENTION," will be the subject of discussions at the Common Session of the Society for Corrosion Research and Material Protection of the VDICh and the Dechema, German Society for Chemical Engineering, which will be held at Bayreuth on June 9 next, on the occasion of the General Meeting of German Chemists, from June 7 to 11.

THE BUSINESS FORECAST of the Federation of British Industries states that probably the outstanding event of the past quarter has been the absence of any real revival in the U.S.A. So long as business in that country continues to be depressed the forces making for a slackening in world trading activity are likely to continue to make headway.

THE AMERICAN SECTION of the Society of Chemical Industry announces the election of the following officers for the year 1938-39: Chairman, Wallace P. Cohoe; vice-chairman, Lincoln T. Work; hon. secretary, Cyril S. Kimball, and hon. treasurer, J. W. H. Randall. The following new committee members were elected to take the place of retiring members: James G. Vail, R. L. Murray, A. E. Marshall, N. A. Shepard, and D. P. Morgan.

"FIFTY YEARS OF GROWTH," is the title of a handsome brochure published on Tuesday, by the Dunlop Rubber Co. to celebrate the Jubilee of J. B. Dunlop's invention of the pneumatic tyre. It was, in the words of Sir George Beharrell, the Dunlop chairman, an epoch-making advance. The story, illustrated in picture and text, passes from Dunlop's experiments with the first pneumatic tyre (fixed by a strip of linen to a wooden disc) to the founding and remarkable progress of the company.

A PETITION BY BRITISH COAL DISTILLATION, LTD., for sanction to a scheme of arrangement involving a reduction of its capital from £900,000 to £570,047 was granted in the Chancery Division on Tuesday. The Hon. Denys Buckley stated that the company was incorporated in 1928. The business, so far, had been of an experimental nature and no profits had been made. It had now reached a stage in which the first plant on a commercial scale was in course of construction.

THE BOARD OF TRADE have received an application under Section 5 (5) of the Finance Act, 1936, for a licence to import free of duty a consignment of glass tubing composed of glass which will transmit not less than 40 per cent. of normally incident radiation through one millimetre thickness at a wavelength of 2.967 Angstrom units. Any representations that a similar article is made, or is likely to be made within a reasonable time, in the United Kingdom or elsewhere in H.M. Dominions, should be addressed to the Principal Assistant Secretary, Industries and Manufactures Department, Board of Trade, Great George Street, London.

THE RESULTS OF THE LAST LEIPZIG SPRING FAIR, held from March 6-14, 1938, exceeded by far those of the Spring Fair, 1937. Provisional returns give the number of exhibitors as 9,549, which means an increase of 7.5 per cent. over the 1937 Spring Fair, and an increase of 49 per cent. over the 1933 Spring Fair. There were 818 foreign firms from 32 different countries. Fourteen countries were represented by joint exhibits, and there was an increase of 22 per cent. in individual foreign exhibitors as compared with previous years. The total number of trade visitors attending the Spring Fair was 304,000, which is an increase of 15.6 per cent. over last year's figures or three times that of 1933. The 1938 Leipzig Autumn Fair will be held from August 28 to September 1.

NEUTRAL ORANGE RX CONC., is a further addition to the range of neutral colours for silk, supplied by the Geigy Colour Co., Ltd. Like the earlier brands, Neutral Orange RX conc. is particularly suitable for dyeing in the degumming bath, more especially with addition of Irgaline S. In comparison with the old "GX conc." brand, Neutral Orange RX conc. is slightly duller and much redder and suitable for the production of modern hosiery shades either alone or in combination with other colours. On account of its fastness to light, water, sea-water, hot pressing, stoving and sulphite, on silk as well as upon wool, this new colour can be used to advantage on wool in form of carpet, knitting or weaving yarns and also on fur or wool felt hoods on account of its high fastness to acid milling. It is also suitable for union materials of wool and cotton, and silk and cotton in which case the vegetable fibres are undyed. Dyed from a weakly acid bath the shades obtained on wool are rather fuller and clearer than those obtained from a neutral Glauber's salt bath.

IMPERIAL CHEMICAL INDUSTRIES, LTD., have issued a new leaflet entitled "Permal W in the Laundry." The leaflet contains the latest information on the use of Permal W by which the destarching and washing treatments are combined.

THE TWO HUNGARIAN BRANCHES of the I. G. Farbenindustrie have dismissed many of their employees who do not conform with the requirements of purely "Aryan" descent. It is understood that the dismissals include the managing director of the Hungarian Dye Trust.

SIR WILLIAM WATERS BUTLER has offered £1,000 towards the cost of £1,600 for four four-year brewing scholarships tenable at Birmingham University, and authorised by the Brewers' Society, provided the remaining £600 is subscribed.

CARDIAC FAILURE DUE TO SILICOSIS was said to be the cause of the death of W. J. Davey, an employee of the Devonshire Baryta Co., Ltd., of Bridford, at an adjourned inquest at Christow on April 20. It was stated to be the only case of silicosis ever experienced by the company.

Inventions in the Chemical Industry

The following information is prepared from the Official Patents Journal. Printed copies of Specifications accepted may be obtained from the Patent Office, 25 Southampton Buildings, London, W.C.2, at 1s. each. The numbers given under "Applications for Patents" are for reference in all correspondence up to the acceptance of the Complete Specification.

Applications for Patents

MANUFACTURE OF DRIERS.—I. G. Farbenindustrie. (Germany, April 1, '37.) 10006.
TREATMENT OF RESIN THREADS, ETC.—I. G. Farbenindustrie. (Germany, May 5, '37.) 10249.
MANUFACTURE OF CARBON TETRACHLORIDE.—I. G. Farbenindustrie. (Germany, April 10, '37.) 10250.
MANUFACTURE OF GLYCERIDES.—I. G. Farbenindustrie. (Germany, April 6, '37.) 10313; (Germany, May 22, '37.) 10314; (Germany, July 19, '37.) 10315; (Germany, Sept. 30, '37.) 10316; (Germany, Oct. 16, '37.) 10317; (Germany, Oct. 23, '37.) 10318.
TREATMENT OF WATER FOR BREWING PURPOSES.—I. G. Farbenindustrie. (Germany, April 19, '37.) 10411.
MANUFACTURE OF SULPHURIC ACID.—Imperial Chemical Industries, Ltd. (France, April 2, '37.) 10085.
PRODUCTION OF HYDROCARBON GASES.—Institution of Gas Engineers, and F. J. Dent. 10131.
MANUFACTURE, ETC., OF DISAZO DYESTUFFS.—G. W. Johnson (I. G. Farbenindustrie.) 10056.
MANUFACTURE, ETC., OF DYESTUFFS.—G. W. Johnson (I. G. Farbenindustrie.) 10057.
RECOVERY OF PARAFFIN WAX.—G. W. Johnson (I. G. Farbenindustrie.) 10125.
HALOGENATION OF HYDROCARBONS.—G. W. Johnson (I. G. Farbenindustrie.) 10319.
MANUFACTURE OF AZO-DYESTUFFS.—A. H. Knight, and Imperial Chemical Industries, Ltd. 10331.
TREATMENT OF RUBBER, ETC.—A. M. Malcolm, F. H. Cotton, and R. Buckingham. 10447.
MANUFACTURE OF WATER-SOLUBLE CHLORITES.—Mathieson Alkali Works. (United States, April 1, '37.) 10054.
PRODUCTION OF UNSATURATED ALCOHOLS.—Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. (United States, April 3, '37.) 10130.
PRODUCTION OF UNSATURATED KETONES.—Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. (United States, April 6, '37.) 10469.
TREATMENT OF CASEIN FIBRES.—Naamlooze Vennootschap Onderzoekingsinstituut Research. (Germany, May 11, '37.) 10450.
TREATMENT OF CASEIN FIBRES.—Naamlooze Vennootschap Onderzoekingsinstituut Research. (Germany, May 26, '37.) (Cognate with 10450.) 10451.
CERAMIC INSULATORS.—Naamlooze Vennootschap Philips' Gloeilampenfabrieken. (Holland, April 6, '37.) 10309.
SILICATED COMPOSITIONS.—V. C. J. Nightingall. 10241.
PRODUCTION OF TABLETS OF SODIUM PEROXIDE.—G. Parizot. (Germany, April 5, '37.) 10040.
MANUFACTURE OF STEEL.—R. Perrin. 10334.
MANUFACTURE OF ACYLATED ETHERS.—Röhm and Hass Co. (United States, April 8, '37.) 9845.
PRODUCTION OF HYDROCARBONS by the catalytic reduction of carbon monoxide with hydrogen.—Rührchemie, A.-G. (Germany, April 17, '37.) 10468.
THERMOPLASTIC RESINS.—M. T. Sampson, and Imperial Chemical Industries, Ltd. 10149, 10150.
PRODUCTION OF AZO-DYESTUFFS on cellulosic materials.—K. H. Saunders, and Imperial Chemical Industries, Ltd. 10080.
MEANS FOR COLOURING ACETATE ARTIFICIAL SILK.—R. H. Senneft, W. W. Tatum, and Imperial Chemical Industries, Ltd. 10332.
HEAT-RESISTING STEELS, ETC.—Soc. d'Electro-Chimie, d'Electro-Metallurgie, et des Acieres Electriques d'Ugine. (France, March 31, '37.) 9938.
MANUFACTURE OF METALLIFEROUS AZO-DYESTUFFS.—Soc. of Chemical Industry in Basle. (Switzerland, April 3, '37.) 10244.
MANUFACTURE OF METALLIFEROUS AZO-DYESTUFFS.—Soc. of Chemical Industry in Basle. (Switzerland, March 5.) (Cognate with 10244.) 10245.
MANUFACTURE OF COLOURED SHAPED STRUCTURES from cellulose esters, etc.—Soc. of Chemical Industry in Basle. (Switzerland, April 14, '37.) 10248.
PREPARATION OF CONDENSATION PRODUCTS OF LACTIC ACID.—B. Sokoloff, and Professional Drug Products, Inc. 10172.

MANUFACTURE OF METALLIFEROUS AZO-DYESTUFFS.—Soc. of Chemical Industry in Basle. (Switzerland, April 3, '37.) 10244.
MANUFACTURE OF RUBBER COMPOSITIONS.—Standard Oil Development Co. (United States, May 5, '37.) 10067.
PURIFICATION OF SOLUTIONS serving for the production of per-compounds.—W. J. Tennant (Henkel and Cie, Ges.). 10544.
PRODUCTION OF PROTECTIVE CHEMICAL COATINGS.—R. Wyermann, and C. L. Wedekind. (Germany, April 5, '37.) 10459.

Specifications Open to Public Inspection

HEXOIC ACID ESTERS.—Carbide and Carbon Chemicals Corporation. Oct. 10, 1936. 17539/37.
PRODUCTION OF CLEANSING AGENTS.—I. G. Farbenindustrie. Oct. 10, 1936. 17996/37.
METHOD OF PRODUCING POLYMERS of high molecular weight.—Standard Oil Development Co. Oct. 10, 1936. 24356/37.
MANUFACTURE OF SHEET OR OTHER PRODUCTS from raw lignocellulose.—Masonite Corporation. Oct. 9, 1936. 25390/37.
ISOLATION OF BORON FLUORIDE.—E. I. du Pont de Nemours and Co. Oct. 10, 1936. 25636/37.
PRODUCTION OF PRODUCTS FROM AMORPHOUS QUARTZ.—M. Hauser. Oct. 6, 1936. 26992/37.
PRODUCTION OF CERAMIC PRODUCTS with a metallic character. M. Hauser. Oct. 6, 1936. 26993/37.
RHODAMINE DERIVATIVES.—British Thomson-Houston Co., Ltd. Oct. 8, 1936. 27087/37.
MANUFACTURE OF HYDROGEN PEROXIDE.—B. Laporte, Ltd. Oct. 6, 1936. 27103/37.
PRODUCTION OF PURE RARE GASES.—I. G. Farbenindustrie. Oct. 9, 1936. 27271/37.
CONTINUOUS REFINING OF VEGETABLE AND ANIMAL OILS.—Aktiebolaget Separator. Oct. 8, 1936. 27363/37.
APPARATUS FOR THE MANUFACTURE AND PRODUCTION OF CONDENSATION PRODUCTS.—I. G. Farbenindustrie. Oct. 9, 1936. 27466/37.
METHOD OF CONCENTRATING AQUEOUS SOLUTIONS, suspensions, and the like.—Ges. Fur Lindes Eismaschinen, A.-G., and G. A. Krause. Oct. 10, 1936. 27633/37.
TREATMENT OF SOLUTIONS containing the lactam of glutamic acid.—Standard Brands, Inc. Sept. 2, 1936. 10720/37.
PRODUCTION OF DEPOLARISING COMPOSITIONS from pyrolusite.—I. G. Farbenindustrie. Oct. 15, 1936. 29232/37.
PROCESS FOR STABILISING VINYL RESINS against the action of light.—Carbide and Carbon Chemicals Corporation. Oct. 16, 1936. 25136/37.
PROCESS FOR THE MANUFACTURE OF ACID SODIUM FLUORIDE.—Seri Holding Soc. Anon. Oct. 15, 1936. 25208/37.
PROCESS FOR MAKING CELLULOSE DERIVATIVES and the product produced.—Cellulose Holdings, Ltd. Oct. 15, 1936. 26486/37.
STEEL-CASTING ALLOY.—H. J. Schiffler. Oct. 12, 1936. 26869/37.
PROCESS OF GLUMATIC ACID RECOVERY from solutions.—Standard Brands, Inc. Oct. 15, 1936. 26957/37.
PROCESS OF GLUMATIC ACID PRODUCTION.—Standard Brands, Inc. Oct. 15, 1936. 26958/37.
MANUFACTURE OF POLYCYCLIC AMIDES.—Fabriques de Produits de Chimie Organique de Laire. Oct. 12, 1936. 27725/37.
MANUFACTURE OF ARTIFICIAL NITROGENOUS TEXTILE FIBRES.—G. Donagema. Oct. 12, 1936. 27727/37.
PROCESS FOR THE METALLURGICAL WORKING OF LOW-GRADE IRON ORES.—Ges. Fur Linde's Eismaschinen, A.-G. Oct. 14, 1936. 27980/37.
PROCESS FOR RENDERING TEXTILES WATER-REPELLENT, and products therefrom.—M. Flores, and W. Essers. Oct. 16, 1936. 28208/37.
ARTIFICIAL PRODUCTION OF FATS.—K. Brandt. Oct. 17, 1936. 28274/37.
MANUFACTURE OF DERIVATIVES OF ORGANIC SULPHODICARBOXYLIC ACIDS.—Soc. of Chemical Industry in Basle. Oct. 17, 1936. 28321/37.
METHOD OF ANNEALING.—W. W. Triggs. Oct. 16, 1936. 28366/37.
TREATMENT OF ANTITOXINS and the like.—Lederle Laboratories, Inc. Oct. 23, 1936. 9011/37.
METHOD AND APPARATUS FOR DESURFACING FERROUS METAL BODIES.—Linde Air Products Co. Oct. 24, 1936. 17425/37.

PROCESS OF AND APPARATUS FOR THE PRODUCTION OF CARBON DISULPHIDE.—I. G. Farbenindustrie. Oct. 19, 1936. 22918/37.

DISPERSION OF OLEFINS in acid polymerisation.—Standard Oil Development Co. Oct. 24, 1936. 24038/37.

REMOVING SULPHUR, ARSENIC and other injurious ingredients from iron and iron alloys.—F. Krupp Grusonwerk, A.-G. Oct. 20, 1936. 24717/37.

MORPHOLINE EMULSIFYING AGENTS.—Carbide and Carbon Chemicals Corporation. Oct. 22, 1936. 25137/37.

COAL-PROCESSING.—National Fuels Corporation. Oct. 24, 1936. 27619/37.

SYNTHESIS OF BASE EXCHANGE MATERIALS.—Inflico, Inc. Oct. 19, 1936. 27950/37.

COMBUSTION OF SULPHUR and the like.—Montecatini Soc. Generale Per L'Industria Mineraria Ed Agricola. Oct. 19, 1936. 28119/37.

PROTECTIVE COATINGS FOR ALUMINIUM or alloys thereof.—British Thomson-Houston Co., Ltd. Oct. 21, 1936. 28345/37.

PROCESS FOR THE MANUFACTURE AND REVIVIFICATION OF ACTIVE CARBONACEOUS MATERIAL.—Naamlooze Vennootschap Octrooien Maatschappij Activit. Oct. 24, 1936. 28350/37.

DECARBONISATION OF CARBON-CONTAINING METALS AND ALLOYS.—B. M. S. Kalling. Oct. 19, 1936. 28453/37.

PRODUCING LUBRICATING-OILS.—Ruhchemie, A.-G. Oct. 24, 1936. 28479/37.

WET-METHOD PROCESS OF METALLISATION.—Soc. Anon. des Manufactures Des Glaces Produits Chimiques de St.-Gobain, Chauny, et Cirey. Oct. 21, 1936. 28580/37.

METHOD OF PROTECTING METAL ARTICLES against seaweeds.—T. Ryckowski. Oct. 20, 1936. 28583/37.

CONCENTRATION OF ORES.—Dorr Co., Inc. Oct. 21, 1936. 28704/37.

OBTENTION OF A THOROUGH SAPONIFICATION during the production of a soap from highly split distilled fatty acids with concentrated soda lye in the open boiler.—Heilsberg and Co., Ges. Oct. 24, 1936. 29068/37.

RETAINING CALCIUM SALT IN SOLUTION, and especially calcium gluconate for purposes of injection.—F. D. Timmermans. Oct. 23, 1936. 28711/37.

HYDROGENATION OF MONOVINYLAETHYLENE.—I. G. Farbenindustrie. Oct. 22, 1936. 28912-13/37.

Specifications Accepted with Dates of Application

TREATMENT OF COPPER-CHROMIUM ALLOY STEELS.—W. P. Digby, and E. T. Digby. July 3, 1936. 482,941.

DYEING OR ANALOGOUS FLUID TREATMENT OF TEXTILE FIBRES.—J. Brandwood. July 4, 1936. 482,817.

PREPARATION OF VITAMIN D in high yields.—Kodak, Ltd. (Eastman Kodak Co.). July 6, 1936. 482,880.

PRODUCTION OF CELLULOSE ETHERS.—E. I. du Pont de Nemours and Co. Aug. 1, 1935. 482,885.

TREATMENT OF CELLULOSE FABRICS.—L. G. Lawrie, D. Ward, and Imperial Chemical Industries, Ltd. Aug. 5, 1936. 482,942.

REFINING OF IRON.—J. S. Fraser, and H. A. Brassert and Co., Ltd. Sept. 1, 1936. 482,820.

LOCAL ANAESTHETIC BASES, and process of preparing same.—Novocol Chemical Manufacturing Co., Inc. Oct. 5, 1935. 482,886.

MANUFACTURE OF MOULDING RESINS.—Bakelite, Ltd. (Oct. 14, 1935.) 482,943.

SILVER HALIDE EMULSIONS for colour photography.—W. W. Groves (I. G. Farbenindustrie.) Sept. 8, 1936. 483,000.

ALUMINIUM ALLOY.—P. Oakley, and D. R. Tullis. Oct. 1, 1936. 482,887.

PROCESS FOR THE MANUFACTURE OF RUBBER, substitutes and like elastic masses or intermediate products.—F. Rostler, and V. Mehner. Oct. 4, 1935. 483,006.

MANUFACTURE OF EXTRACTS OF SPLEEN OR LIVER.—I. G. Farbenindustrie. Oct. 5, 1935. 482,826.

MANUFACTURE OF COLD SWELLING and cold soluble starch products.—Naamlooze Vennootschap W. A. Scholten's Chemische Fabrieken. Oct. 7, 1935. 483,037.

PRODUCTION OF CHEMICALLY RESISTANT OIL COLOUR PAINTS.—Elektroschmelzwerk Kempten, A.-G. Aug. 13, 1936. 482,834.

MANUFACTURE OF POLYMETHINE DYESTUFFS and of sensitised photographic emulsions.—I. G. Farbenindustrie. Oct. 31, 1935. 483,045.

SENSITISING PHOTOGRAPHIC SILVER HALIDE EMULSIONS.—I. G. Farbenindustrie. Oct. 24, 1935. 482,952.

MANUFACTURE AND PRODUCTION OF OXIDATION PRODUCTS from mixtures containing paraffin waxes.—G. W. Johnson (I. G. Farbenindustrie.) Oct. 7, 1936. 482,954.

ELECTRODEPOSITION OF ZINC.—Grasselli Chemical Co., and L. R. Westbrook. Oct. 7, 1936. 482,958.

NITROGENOUS SYNTHETIC RESINS.—G. W. Johnson (I. G. Farbenindustrie.) Oct. 8, 1936. 482,897.

MANUFACTURE AND PRODUCTION OF ETHYL CHLORIDE.—G. W. Johnson (I. G. Farbenindustrie.) Oct. 8, 1936. 483,051.

MANUFACTURE AND PRODUCTION OF ALCOHOLS of high molecular weight.—G. W. Johnson (I. G. Farbenindustrie.) Nov. 18, 1936. 482,970.

MANUFACTURE OF GASOLINE-LIKE HYDROCARBONS by the polymerisation of cracking gases.—A. H. Stevens (Process Management Co., Inc.). Jan. 19, 1937. 482,978.

DEPOSITION OF METALLIC FILMS from metal vaporised in vacuo. P. Alexander. Oct. 12, 1935. 483,029.

CONVERSION OF HYDROCARBON OILS.—A. L. Mond (Universal Oil Products Co.). Oct. 13, 1936. 482,905.

PREPARATION OF SUSPENSIONS OF TITANIUM PIGMENTS.—W. J. Tennant (Titan Co., Inc.). Feb. 22, 1937. 482,980.

PRODUCTION OF CELLULOSE DERIVATIVE SHEETS or films.—Kodak, Ltd. March 13, 1936. 482,921.

HARDENING OF CELLULOSIC AND OTHER POROUS MATERIALS, and products resulting therefrom.—C. Luckhaupt. April 23, 1936. 482,847.

PRODUCTION OF ENAMEL.—I. Kreidl. Aug. 27, 1936. 482,861.

MANUFACTURE OF MATERIALS comprising artificial resins.—O. F. Wyss. July 20, 1936. 483,638.

SUBSTANCES USEFUL AS WETTING, WASHING, AND PURIFYING AGENTS, and processes of making the same.—H. Lederer. Aug. 10, 1936. (Convention date not granted.) 483,301.

SILVER HALIDE EMULSIONS for use in processes of colour photography.—W. W. Groves (I. G. Farbenindustrie.) Aug. 19, 1936. 483,548.

PROTEIN COMPOSITIONS.—E. I. du Pont de Nemours and Co. and C. J. Wernlund. Sept. 11, 1936. 483,550.

PRODUCTION OF LIGHT LIQUID HYDROCARBONS by hydrogenation of low-temperature tar.—F. Puening. Sept. 15, 1936. 483,371.

DISTILLATION OF CARBONACEOUS SLACK, peat, shale, and the like, and apparatus for such purpose.—F. P. Hull, and F. N. Hull. Sept. 18, 1936. 483,375.

FORMATION OF CHEMICAL COATINGS ON METALS.—Patents Corporation. Oct. 19, 1935. 483,551.

MANUFACTURE OF ISOCYANATES.—R. Greenhalgh, H. A. Piggott, and Imperial Chemical Industries, Ltd. Oct. 14, 1936. 483,308.

MANUFACTURE OF DYESTUFFS of the anthraquinone series.—W. W. Groves (I. G. Farbenindustrie.) Oct. 15, 1936. 483,313.

PROCESS FOR THE MANUFACTURE OF A COLLOIDAL PRODUCT from wool fat.—A. Carpmal (I. G. Farbenindustrie.) Oct. 15, 1936. 483,315.

MANUFACTURE OF LUBRICATING-OILS.—A. P. Lowes, D. E. White, and Imperial Chemical Industries, Ltd. Oct. 15, 1936. 483,316.

PROCESS FOR THE MANUFACTURE OF CELLULOSE ACETO-NITRATES. E. Berl. Oct. 16, 1936. 483,474.

MANUFACTURE OF TANNING MATERIALS.—I. G. Farbenindustrie, and A. Carpmal. Oct. 16, 1936. 483,560.

MANUFACTURE OF BASIC SUBSTITUTED CARBOXYLIC ACID AMIDES.—Deutsche Hydrierwerke, A.-G. Oct. 16, 1935. (Sample furnished.) 483,324.

ANTHRAQUINONE DYESTUFFS.—N. H. Haddock, F. Lodge, C. H. Lumsden, and Imperial Chemical Industries, Ltd. Oct. 16, 1936. 483,325.

MANUFACTURE OF DERIVATIVES OF AMINO ALCOHOLS.—L. S. E. Ellis (Soc. des Usines Chimiques Rhone-Poulenc). Oct. 16, 1936. 483,704.

COMPOSITIONS CONTAINING RUBBER, rubber substitutes, and synthetic rubbers.—Standard Oil Development Co. Oct. 17, 1936. 483,563.

MANUFACTURE OF CONDENSATION PRODUCTS and aqueous solutions thereof and their application in tanning.—I. G. Farbenindustrie. Oct. 18, 1935. 483,481.

PRODUCTION OF VALUABLE DYEINGS on mixed fabrics.—G. W. Johnson (I. G. Farbenindustrie.) Oct. 19, 1936. 483,564.

PRODUCING MIXED CELLULOSIC ESTERS.—Afag Finanzierungs, A.-G. Oct. 18, 1935. 483,485.

PROCESS FOR THE MANUFACTURE OF MANGANESE PIGMENTS.—A. Carpmal (I. G. Farbenindustrie.) Oct. 20, 1936. 483,333.

EXTRACTION OF THE VALUABLE CONTENTS OF ORES.—F. B. Dehn (Vacuum Process Extraction Corporation). Oct. 20, 1936. 483,651.

ALUMINIUM ALLOYS.—Vereinigte Deutsche Metallwerk, A.-G. Oct. 21, 1936. 483,572.

MANUFACTURE OF ORGANIC ACIDS AND ESTERS.—E. I. du Pont de Nemours and Co. Oct. 22, 1935. 483,577.

PURIFICATION OF FUEL GASES.—Gas Light and Coke Co., H. Hollings, W. K. Hutchison, G. Dougill, and A. R. Morcom. Oct. 21, 1936. 483,706.

MANUFACTURE OF ARTIFICIAL MASSES from polyvinyl halides.—I. G. Farbenindustrie. Oct. 26, 1935. 483,657.

TREATMENT OF WATERS, sewage effluents, and the like for disinfection purposes.—J. J. Collins. Oct. 22, 1936. 483,661.

SYNTHETIC RESINS of the polymerisation type.—Sir G. T. Morgan, and C. F. Griffith. Oct. 23, 1936. 483,664.

MANUFACTURE OF HYDROXY ACIDS and unsaturated acids of the cyclopentano-phenanthrene series.—Schering-Kahlbaum, A.-G. Oct. 24, 1935. 483,670.

MANUFACTURE AND PRODUCTION OF COMPOUNDS of the pyrimidine and pyrimidone series.—G. W. Johnson (I. G. Farbenindustrie.) Oct. 26, 1936. 483,585.

SEPARATION OF METALS.—E. L. W. Byrne (American Smelting and Refining Co.). Oct. 26, 1936. 483,675.

MAKING SOLUTIONS OF OXYGEN in aliphatic compounds.—H. H. Heer. Nov. 4, 1935. 483,390.

PROCESS FOR MANUFACTURING ORGANIC ADDITION COMPOUNDS containing metals.—Naamlooze Vennootschap de Bataafsche Petroleum Maatschappij. (Feb. 25, 1936.) 483,400.

RESINOUS CONDENSATION PRODUCTS.—E. I. du Pont de Nemours and Co. (Jan. 7, 1936.) 483,399.

MANUFACTURE AND PRODUCTION OF ACRIDONE DYESTUFFS capable of being chromed.—G. W. Johnson (I. G. Farbenindustrie). Jan. 13, 1937. 483,402.

METHODS FOR THE PRODUCTION OF REACTIVE HYDROGEN.—D. Gardner. Jan. 19, 1937. 483,406.

MANUFACTURE OF ARTICLES subject to corrosion or inter-granular attack in steam from copper base alloys and the heat treatment of said alloys.—A. H. Stevens (American Brass Co.). Feb. 8, 1937. 483,407.

APPARATUS FOR PRODUCING ACETYLENE and lime hydrate.—Prest-o-Lite Co., Inc. March 27, 1936. 483,601.

CONVERSION OF ALIPHATIC HYDROCARBONS.—Universal Oil Products Co. Sept. 30, 1936. 483,417.

METHODS OF PRODUCING VULCANISED RUBBER SOLUTIONS.—V. Tanner. April 7, 1937. 483,421.

MANUFACTURE AND PRODUCTION OF HYDROGEN.—I. G. Farbenindustrie. May 8, 1936. 483,426.

MANUFACTURE OF ACID-WOOL DYESTUFFS.—I. G. Farbenindustrie. July 29, 1936. 483,442.

PRODUCING POLYMERS of high molecular weight.—Standard Oil Development Co. Oct. 10, 1936. 483,453.

MANUFACTURE AND PRODUCTION OF METAL POWDERS, for electrical and magnetic purposes.—I. G. Farbenindustrie. Oct. 3, 1936. 483,458.

PHOTOGRAPHIC SENSITIVE EMULSIONS.—Kodak, Ltd. (Eastman Kodak Co.). Sept. 15, 1936. 483,459.

PREPARATION OF SUSPENSIONS OF TITANIUM PIGMENTS.—British Titan Products Co., Ltd. Nov. 5, 1936. 483,694.

PRODUCTION OF SYNTHETIC RESINS and the manufacture of films or sheets therefrom.—Kodak, Ltd. (Eastman Kodak Co.). July 8, 1936. 483,222.

POLYVINYL ACETAL RESINS.—Kodak, Ltd. (Eastman Kodak Co.). July 8, 1936. 483,223.

COLOURING CELLULOSE ESTERS.—E. Clayton. July 9, 1936. 483,148.

MANUFACTURE AND PRODUCTION OF N-SUBSTITUTED ASPARTIC ACIDS and their derivatives.—G. W. Johnson (I. G. Farbenindustrie). July 13, 1936. 483,224.

DYEING OF ARTIFICIAL FILAMENTS, ribbons, films and similar materials.—J. H. Rooney, and B. Shaw. Oct. 9, 1936. 483,242.

CONDENSATION PRODUCTS FROM AROMATIC SULPHONIDES and the use of the products in plastic compositions.—W. H. Moss. Oct. 12, 1936. (Samples furnished.) 483,087.

MANUFACTURE OF DYESTUFFS and the colouration of textile and other materials therewith.—G. H. Ellis and H. C. Olpin. Oct. 12, 1936. 483,278.

MANUFACTURING ACTIVATED MAGNESIUM OXIDE.—L. Mellersh-Jackson (Marine Chemicals Co., Ltd.). Oct. 15, 1936. 483,096.

DEHYDROGENATION OF ALIPHATIC HYDROCARBONS.—Universal Oil Products Co. Sept. 17, 1936. 483,184.

CONVERSION OF ALIPHATIC HYDROCARBONS.—Universal Oil Products Co. Sept. 30, 1936. 483,185.

CONVERSION OF ALIPHATIC HYDROCARBONS.—Universal Oil Products Co. Sept. 30, 1936. 483,189.

DEHYDROGENATION OF ALIPHATIC HYDROCARBONS.—Universal Oil Products Co. Oct. 15, 1936. 483,190.

DEHYDROGENATION OF ALIPHATIC HYDROCARBONS.—Universal Oil Products Co. Oct. 15, 1936. 483,192.

CONTINUOUS PRODUCTION OF ZINC in vertical reduction chambers.—Metallgesellschaft, A.G. June 10, 1936. 483,256.

MANUFACTURE OF BASIC ESTERS of polyacetic acids.—A. G. Bloxam. June 8, 1936. 483,258.

PLASTIC ZINC ALLOY.—G. Von Giesecke's Erben. Nov. 6, 1936. 483,198.

MACHINABLE PLASTIC ZINC ALLOY.—G. Von Giesecke's Erben. Jan. 5, 1937. 483,199.

SEPARATION OF ALKALI OR ALKALINE EARTH REACTING INGREDIENTS from alloys thereof with lead or tin or lead and tin.—American Metal Co., Ltd. Aug. 11, 1936. 483,119.

BORON NITRIDE and methods of producing the same.—British Thomson-Houston Co., Ltd. July 31, 1936. 483,201.

METHODS OF PURIFYING HALOGENATED AROMATIC HYDROCARBONS.—British Thomson-Houston Co., Ltd. July 31, 1936. 483,202.

Chemical and Allied Stocks and Shares

THE better tendency which developed in most sections of the Stock Exchange last week has not been maintained and the general trend has been to rather lower prices. No material amount of selling was reported, but sentiment has been influenced by a general tendency to await further developments in international affairs.

Imperial Chemical were dull, but at 31s. 10½d. show a gain of a few pence on balance. On the other hand, most shares which improved strongly last week have reacted rather sharply at the time of writing. Turner and Newall, for instance, have gone back 1s. 3d. to 82s. 6d., although the market is hopeful of a small increase in the interim dividend.

British Oxygen are 80s. 7½d. at the time of writing, compared with 83s. 1½d. a week ago, while Boots Drug have lost 1s. 6d. to 47s. 6d., awaiting the results. Lever and Unilever show a moderate decline to 37s. in advance of the meeting, but changed hands actively. British Aluminium were also active, and although best prices were not held, are 52s. 3d. at the time of writing, or the same as a week ago.

Timothy Whites and Taylors received attention in view of the good impression created by the meeting, and at 27s. 6d. have moved up 9d. Beechams Pills deferred shares were active on the large increase in profits and the higher distribution. Although there was a good deal of profit-taking in the shares, they are 63s. at the time of writing, or 3s. higher on the week. Sangers at 22s. 9d. retained their recent gain, while British Drug Houses were again 23s. 9d. United Glass Bottle at 50s. show a decline of 9d., but the price did not appear to be tested by a great deal of business. B. Laporte were again higher on the possibility of a larger dividend. Distillers were reactionary and have gone back to 94s. 9d., the duty on power alcohol having lessened market hopes of a further increase in this company's dividend, the general assumption being that shareholders will again receive a distribution at the rate of 22½ per cent. General Refractories, which were steady, have remained around 17s. 6d. Fison Packard and Prentice were unchanged at 34s. 4½d. and continue to be held firmly, partly on talk of a possible increase in the forthcoming interim dividend. British Glues' shares transferred up to 6s. and British Industrial Plastics remained at 2s. 3d. Cerebos and Reckitt and Son's ordinary shares were steady features. Associated Portland Cement improved moderately to 83s. 9d., but British Plaster Board made the slightly lower price of 26s. United Molasses were lower.

Textile and allied shares were inactive and in most cases have moved against holders, including Courtaulds. Iron, steel and kindred shares were also at rather reduced prices, although Dorman Long, Consett Iron, Pease and Partners and Babcock and Wilcox were subsequently reported to be firmer.

Oil shares regained a small part of earlier declines. Sentiment was assisted to some extent by the maintenance of Trinidad Leasehold's interim dividend at 10 per cent. The market is hopeful the forthcoming results of the Burmah Oil Company will show that the distribution is again to be brought up to 27½ per cent.; in some quarters there is also talk of a scrip bonus. The assumption is that in respect of the past year, profits have been maintained, particularly as the company's income from its "Shell" and Anglo-Iranian shareholdings will reflect the higher dividends paid by these companies in 1937.

Forthcoming Events

London.

- May 9.**—University College, Gower Street, W.C.1. 5.30 p.m. Professor Dr. P. Debye, "Molecular Physics: Structure of Liquids."
- May 10.**—University College, Gower Street, W.C.1. 5.30 p.m. Professor Dr. P. Debye, "Molecular Physics: Relaxation in Electric and Magnetic Fields."
- May 11.**—Society of Chemical Industry (Food Group) Annual General Meeting. London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1. 8 p.m.
- Royal Society of Arts, John Street, Adelphi, W.C.2. 8.30 p.m. Ordinary Meeting. Colonel W. M. Carr, "The Coordination of Gas Supply."
- The Society for the Study of Alchemy and Early Chemistry. The British Academy, Burlington Gardens, W.1. 8 p.m. Professor John Read, "Alchemy under James IV of Scotland."
- British Chemical and Dyestuffs Traders' Association, Ltd., Waldorf Hotel, Aldwych, W.C.2. 1 p.m. Annual Luncheon. 3 p.m. Annual General Meeting.
- May 12.**—Institute of Fuel. Junior Institution of Engineers, 39 Victoria Street, S.W.1. 6 p.m. Dr. F. W. Myddleton, "The Synthesis of Hydrocarbon Oils: Process of Synthetic Oils, Ltd."
- May 17.**—The Institution of Chemical Engineers. Joint Meeting with the Institution of Mechanical Engineers, Storey's Gate, Westminster. 6 p.m. Dr. J. H. Dobson and Professor W. J. Walker, "The Improvement of Atmospheric Air Conditions in Deep and Humid Mines."

Birmingham.

- May 11.**—British Association of Chemists. Birmingham and Midland Section Annual Meeting.

Droitwich.

- May 18-21.**—Society of Glass Technology. Fifth Glass Convention.

Weekly Prices of British Chemical Products

THERE have been no outstanding features in the chemical market during the week and new bookings have been on a decidedly small scale. A better overseas inquiry is reported in some directions, but the movement in the home market is chiefly confined to ex-contract deliveries. Seasonal inquiry has been circulating for weed killers and fertilisers although actual orders placed have so far been disappointing. A reduction of £1 per ton in the convention quotations for lead oxides came into operation on May 3 as a result of the weakness in the value of the metal, but there have been no other important price changes and values on the whole are steady as quoted. Inactive conditions continue to prevail in the coal tar section, and the market on the whole is weak. The outlook is regarded as uncertain and dependant largely on developments in the American market.

MANCHESTER.—Fresh bookings this week on the Manchester chemical market have been on a comparatively limited scale and few traders have reported any important additions to order-

books. Taking the market as a whole, the price position continues steady, although an easy tendency is apparent in the non-ferrous metal products in sympathy with the weakness in the metals. The demand locally for textile dyeing and finishing chemicals this week has been on moderate lines, with deliveries principally against old contracts; there is room for improvement in this and several other branches of the using trades, and some sellers state that specifications are by no means so good as they should be. In the case of the tar products the demand continues slow in most sections and where any change in prices has occurred it has been towards still lower levels.

GLASGOW.—There has been a slight improvement in the demand for chemicals for home trade during the week though without any special feature. Export business, however, remains very quiet. Prices generally continue quite steady at about previous figures, but red lead and litharge have been reduced £1 per ton on account of the fall in the prices of the metals.

Price Changes

Falls: Lead, red; Oxalic Acid (Manchester); Benzol, crude; standard motor; 90%; Naphthalene (Manchester); Lead, red; Litharge; Lead acetate (Glasgow).

General Chemicals

ACETONE.—£45 to £47 per ton.
ACETIC ACID.—Tech, 80%, £30 5s. per ton; pure 80%, £32 5s.; tech., 40%, £15 12s. 6d. to £18 12s. 6d.; tech., 60%, £23 10s. to £25 10s. MANCHESTER: 80%, commercial, £30 5s.; tech. glacial, £42 to £46.
ALUM.—Loose lump, £8 7s. 6d. per ton d/d; GLASGOW: Ground, £10 7s. 6d. per ton; lump, £9 17s. 6d.
ALUMINIUM SULPHATE.—£7 2s. 6d. per ton d/d Lanes GLASGOW: £7 to £8 ex store.
AMMONIA, ANHYDROUS.—Spot, 1s. to 1s. 1d. per lb. d/d in cylinders. SCOTLAND: 10½d. to 1s. 0½d., containers extra and returnable.
AMMONIA, LIQUID.—SCOTLAND: 80°, 2½d. to 3d. per lb., d/d.
AMMONIUM CARBONATE.—£20 per ton d/d in 5 cwt. casks.
AMMONIUM CHLORIDE.—Grey galvanising, £19 per ton, ex wharf.
AMMONIUM CHLORIDE (MURIATE).—SCOTLAND: British dog tooth crystals, £32 to £35 per ton carriage paid according to quantity. (See also Salammoniac.)
AMMONIUM DICHROMATE.—8½d. per lb. d/d U.K.
ANTIMONY OXIDE.—£68 per ton.
ARSENIC.—Continental material £11 per ton c.i.f., U.K. ports; Cornish White, £12 5s. to £12 10s. per ton f.o.r. mines, according to quantity. MANCHESTER: White powdered Cornish, £16 10s. per ton, ex store.
BARIUM CHLORIDE.—£11 10s. to £12 10s. per ton in casks ex store. GLASGOW: £11 10s. per ton.
BLEACHING POWDER.—Spot, 35/37%, £9 5s. per ton in casks, special terms for contracts. SCOTLAND: £9 per ton net ex store.
BORAX COMMERCIAL.—Granulated, £16 per ton; crystal, £17; powdered, £17 10s.; extra finely powdered, £18 10s., packed in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Granulated, £16, crystal, £17; powdered, £17 10s. per ton in 1-cwt. bags, carriage paid.
BORIC ACID.—Commercial granulated, £28 10s. per ton; crystal, £29 10s.; powdered, £30 10s.; extra finely powdered, £32 10s. in 1-cwt. bags, carriage paid home to buyers' premises within the United Kingdom in 1-ton lots. GLASGOW: Crystals, £29 10s.; powdered, £30 10s. 1-cwt. bags in 1-ton lots.
CALCIUM BISULPHITE.—£6 10s. per ton f.o.r. London.
CHARCOAL, LUMP.—£6 to £6 10s. per ton, ex wharf. Granulated, £7 to £9 per ton according to grade and locality.
CHLORINE, LIQUID.—£18 15s. per ton, seller's tank wagons, carriage paid to buyer's sidings; £19 5s. per ton, d/d in 16/17 cwt. drums (3-drum lots); £19 10s. per ton d/d in 10-cwt. drums (4-drum lots); 3½d. per lb. d/d station in 70-lb. cylinders (1-ton lots).
CHROMETAN.—Crystals, 2½d. per lb.; liquor, £19 10s. per ton d/d station in drums. GLASGOW: 70/75% solid, £5 15s. per ton net ex store.
CHROMIC ACID.—10d. per lb., less 2½%; d/d U.K.
CHROMIUM OXIDE.—11d. per lb.; d/d U.K.
CITRIC ACID.—1s. 0½d. per lb. MANCHESTER: 1s. 0½d. SCOTLAND: B.P. crystals, 1s. 0½d. per lb.; less 5%, ex store.
COPPER SULPHATE.—£21 7s. 6d. per ton, less 2% in casks. MANCHESTER: £18 10s. per ton f.o.b. SCOTLAND: £19 10s. per ton, less 5%, Liverpool, in casks.
CREAM OF TARTAR.—100%, 92s. per cwt., less 2½%. GLASGOW: 99%, £4 12s. per cwt. in 5-cwt. casks.
FORMALDEHYDE.—£20-£22 per ton.
FORMIC ACID.—85%, in carboys, ton lots, £42 to £47 per ton.

GLYCERINE.—Chemically pure, double distilled, 1.260 s.g., in tins, £4 2s. 6d. to £5 2s. 6d. per cwt. according to quantity; in drums, £3 15s. 0d. to £4 7s. 6d.
HYDROCHLORIC ACID.—Spot, 5s. 6d. to 8s. carboy d/d according to purity, strength and locality.
IODINE.—Resublimed B.P., 6s. 4d. per lb. in 7 lb. lots.
LACTIC ACID.—(Not less than ton lots). Dark tech., 50% by vol., £24 10s. per ton; 50% by weight, £28 10s.; 80% by weight, £50; pale tech., 50% by vol., £28; 50% by weight, £33; 80% by weight, £55; edible, 50%, by vol., £41. One-ton lots ex works, barrels free.
LEAD ACETATE.—LONDON: White, £31 10s. ton lots; brown, £35. GLASGOW: White crystals, £31; brown, £1 per ton less. MANCHESTER: White, £32; brown, £31.
LEAD, NITRATE.—£32 per ton for 1-ton lots.
LEAD, RED.—£31 15s. 0d. 10 cwt. to 1 ton, less 2½% carriage paid. SCOTLAND: £31 per ton, less 2½% carriage paid for 2-ton lots.
LITHARGE.—SCOTLAND: Ground, £31 per ton, less 2½% carriage paid for 2-ton lots.
MAGNESITE.—SCOTLAND: Ground calcined, £9 per ton, ex store.
MAGNESIUM CHLORIDE.—SCOTLAND: £7 10s. per ton.
MAGNESIUM SULPHATE.—Commercial, £5 10s. per ton, ex wharf.
MERCURY.—Ammoniated B.P. (white precip.), lump, 5s. 10d. per lb.; powder B.P., 6s. 0d.; bichloride B.P. (corros. sub.) 5s. 1d.; powder B.P. 4s. 9d.; chloride B.P. (calomel), 5s. 10d.; red oxide cryst. (red precip.), 6s. 11d.; levig. 6s. 5d.; yellow oxide B.P. 6s. 3d.; persulphate white B.P.C., 6s. 0d.; sulphide black (hyd. sulph. cum sulph. 50%), 5s. 11d. For quantities under 112 lb., 1d. extra; under 28 lb., 5d. extra.
METHYLATED SPIRIT.—61 O.P. industrial, 1s. 5d. to 2s. per gal.; pyridinised industrial, 1s. 7d. to 2s. 2d.; mineralised, 2s. 6d. to 3s. Spirit 64 O.P. is 1d. more in all cases and the range of prices is according to quantities. SCOTLAND: Industrial 64 O.P., 1s. 9d. to 2s. 4d.
NITRIC ACID.—Spot, £25 to £30 per ton according to strength, quantity and destination.
OXALIC ACID.—£48 15s. to £57 10s. per ton, according to packages and position. GLASGOW: £2 9s. per cwt. in casks. MANCHESTER: £49 to £54 per ton ex store.
PARAFFIN WAX.—SCOTLAND: 3½d. per lb.
POTASH CAUSTIC.—Solid, £35 5s. to £40 per ton according to quantity, ex store; broken, £42 per ton. MANCHESTER: £38 10s.
POTASSIUM CHLORATE.—£36 7s. 6d. per ton. GLASGOW: 4½d. per lb. MANCHESTER: £37 10s. per ton.
POTASSIUM DICHROMATE.—5½d. per lb. carriage paid. SCOTLAND: 5½d. per lb., net, carriage paid.
POTASSIUM IODIDE.—B.P. 5s. 6d. per lb. in 7 lb. lots.
POTASSIUM NITRATE.—Small granular crystals, £24 to £27 per ton ex store, according to quantity. GLASGOW: Refined granulated, £29 per ton c.i.f. U.K. ports. Spot, £30 per ton ex store.
POTASSIUM PERMANGANATE.—LONDON: 9½d. per lb. SCOTLAND: B.P. Crystals, 9½d. MANCHESTER: B.P. 10½d. to 1s.
POTASSIUM PRUSSIAN.—6½d. per lb. SCOTLAND: 7d. net, in casks, ex store. MANCHESTER: Yellow, 6½d. to 6½d.
SALAMMONIAC.—Firsts lump, spot, £42 17s. 6d. per ton, d/d address in barrels. Dog-tooth crystals, £36 per ton; fine white crystals, £18 per ton, in casks, ex store. GLASGOW: Large crystals, in casks, £37 10s.
SALT CAKE.—Unground, spot, £3 11s. per ton.
SODA ASH.—58% spot, £5 17s. 6d. per ton f.o.r. in bags.

SODA, CAUSTIC.—Solid, 76/77° spot, 13s. 10s. per ton d/d station. **SCOTLAND:** Powdered 98/99%, £28 10s. in drums, £19 5s. in casks, Solid 76/77° £15 12s. 6d. in drums; 70/73%, £15 12s. 6d., carriage paid buyer's station, minimum 4-ton lots; contracts, 10s. per ton less.

SODA CRYSTALS.—Spot, £5 to £5 5s. per ton d/d station or ex depot in 2-cwt. bags.

SODIUM ACETATE.—£19-£20 per ton carriage paid North. **GLASGOW:** £18 10s. per ton net ex store.

SODIUM BICARBONATE.—Refined spot, £10 15s. per ton d/d station in bags. **GLASGOW:** £13 5s. per ton in 1 cwt. kegs, £11 5s. per ton in 2-cwt. bags. **MANCHESTER:** £10 10s.

SODIUM BISULPHITE POWDER.—60/62%, £20 per ton d/d 1 cwt. iron drums for home trade.

SODIUM CARBONATE MONOHYDRATE.—£20 per ton d/d in minimum ton lots in 2 cwt. free bags.

SODIUM CHLORATE.—£27 10s. to £32 per ton. **GLASGOW:** £1 11s. per cwt., minimum 3 cwt. lots.

SODIUM DICHROMATE.—Crystals cake and powder 4½d. per lb. net d/d U.K. with rebates for contracts. **MANCHESTER:** **SODIUM CHROMATE.**—4½d. per lb. d/d U.K.

SODIUM HYPOSULPHITE.—Pea crystals, £15 5s. per ton for 2-ton lots; commercial, £11 5s. per ton. **MANCHESTER:** Commercial, £11; photographic, £15 10s.

SODIUM METASILICATE.—£14 5s. per ton, d/d U.K. in cwt. bags.

SODIUM NITRATE.—Refined, £8 per ton for 6-ton lots d/d. **GLASGOW:** £1 12s. 6d. per cwt. in 1-cwt. kegs, net, ex store.

SODIUM NITRITE.—£18 5s. per ton for ton lots.

SODIUM PERBORATE.—10%, 9½d. per lb. d/d in 1-cwt. drums.

SODIUM PHOSPHATE.—Di-sodium, £12 per ton delivered for ton lots. Tri-sodium, £15 to £16 per ton delivered per ton lots.

SODIUM PRUSSIAN.—d. per lb. for ton lots. **GLASGOW:** 5d. to 5½d. ex store. **MANCHESTER:** 4½d. to 5½d.

SODIUM SILICATE.—£8 2s. 6d. per ton.

SODIUM SULPHATE (GLAUBER SALTS).—£3 per ton d/d.

SODIUM SULPHATE (SALT CAKE).—Unground spot, £3 to £3 10s. per ton d/d station in bulk. **SCOTLAND:** Ground quality, £3 5s. per ton d/d. **MANCHESTER:** £3 12s. 6d.

SODIUM SULPHIDE.—Solid 60/62%. Spot, £11 15s. per ton d/d in drums; crystals, 30/32%, £9 per ton d/d in casks. **MANCHESTER:** Concentrated solid, 60/62%, £11; commercial, £8 10s.

SODIUM SULPHITE.—Pea crystals, spot, £14 10s. per ton d/d station in kegs.

SULPHUR PRECIP.—B.P., £55 to £60 per ton according to quantity. Commercial, £50 to £55.

SULPHURIC ACID.—168° Tw., £4 11s. to £5 1s. per ton; 140° Tw., arsenic-free, £3 to £3 10s.; 140° Tw., arsenious, £2 10s.

TARTARIC ACID.—1s. 1½d. per lb. less 5%, carriage paid for lots of 5 cwt. and upwards. **MANCHESTER:** 1s. 1½d. per lb. **GLASGOW:** 1s. 1d. per lb., 5%, ex store.

ZINC SULPHATE.—Tech., £11 10s. f.o.r., in 2 cwt. bags.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 7d. to 1s. 2d. per lb., according to quality. **Crimson.** 1s. 6d. to 1s. 7½d. per lb.

ARSENIC SULPHIDE.—Yellow, 1s. 5d. to 1s. 7d. per lb.

BARYTES.—£6 to £6 10s. per ton, according to quality.

CADMIUM SULPHIDE.—4s. 9d. to 5s. per lb.

CARBON BLACK.—4d. per lb., ex store.

CARBON DISULPHIDE.—£31 to £33 per ton, according to quantity, drums extra.

CARBON TETRACHLORIDE.—£41 to £46 per ton, according to quantity, drums extra.

CHROMIUM OXIDE.—Green, 10½d. to 11d. per lb.

DIPHENYLANTHRAQUINONE.—2s. 2d. per lb.

INDIA-RUBBER SUBSTITUTES.—White, 4½d. to 5½d. per lb.; dark 4d. to 4½d. per lb.

LAMP BLACK.—£24 to £26 per ton del., according to quantity. Vegetable black, £35 per ton upwards.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPONE.—Spot, 30%, £16 10s. per ton, 2-ton lots d/d in bags.

SULPHUR.—£9 to £9 5s. per ton. **SULPHUR PRECIP. B.P.**, £55 to £60 per ton. **SULPHUR PRECIP. COMM.**, £50 to £55 per ton.

SULPHUR CHLORIDE.—5d. to 7d. per lb., according to quantity.

VERMILION.—Pale, or deep, 4s. 9d. per lb., 1-cwt. lots.

ZINC SULPHIDE.—£58 to £60 per ton in casks ex store, smaller quantities up to 1s. per lb.

Nitrogen Fertilisers

AMMONIUM SULPHATE.—The following prices have been announced for neutral quality basis 20.6% nitrogen, in 6-ton lots delivered farmer's nearest station up to June 30, 1938: November, £7 8s.; December, £7 9s. 6d.; January, 1938, £7 11s.; February, £7 12s. 6d.; March/June, £7 14s.

CALCIUM CYANAMIDE.—The following prices are for delivery in 5-ton lots, carriage paid to any railway station in Great Britain up to June 30, 1938: November, £7 10s.; December, £7 11s. 3d.; January, 1938, £7 12s. 6d.; February, £7 13s. 9d.; March, £7 15s.; April/June, £7 16s. 3d.

NITRO CHALK.—£7 10s. 6d. per ton up to June 30, 1938.

SODIUM NITRATE.—£8 per ton for delivery up to June 30, 1938.

CONCENTRATED COMPLETE FERTILISERS.—£11 4s. to £11 13s. per ton in 6-ton lots to farmer's nearest station.

AMMONIUM PHOSPHATE FERTILISERS.—£10 19s. 6d. to £14 16s. 6d. per ton in 6-ton lots to farmer's nearest station.

Coal Tar Products

BENZOL.—At works, crude, 10d. to 10½d. per gal.; standard motor, 1s. 3½d. to 1s. 4d.; 90%, 1s. 4½d. to 1s. 5d.; pure, 1s. 8½d. to 1s. 9d. **GLASGOW:** Crude, 10d. to 10½d. per gal.; motor, 1s. 4d. to 1s. 4½d. **MANCHESTER:** Pure, 1s. 7d. to 1s. 8d. per gal.; crude, 1s. per gal.

CARBOLIC ACID.—Crystals, 7½d. to 8½d. per lb., small quantities would be dearer; Crude, 60's, 3s. 0d. to 3s. 3d.; dehydrated, 4s. 4½d. to 4s. 7½d. per gal. **MANCHESTER:** Crystals, 7½d. per lb. f.o.b. in drums; crude, 3s. to 3s. 6d. per gal.

CREOSOTE.—Home trade, 5½d. per gal. f.o.r. makers' works; exports, 6½d. to 6¾d. per gal., according to grade. **MANCHESTER:** 4½d. to 5½d. **GLASGOW:** B.S.I. Specification, 6d. to 6½d. per gal.; washed oil, 5d. to 5½d.; lower sp. gr. oils, 5½d. to 6½d.

CRESYLIC ACID.—97/99%, 2s. 2d. to 2s. 5d.; 99/100%, 4s. to 5s. 6d. per gal., according to specification; Pale, 99/100%, 2s. 6d. to 2s. 9d.; Dark, 95%, 1s. 10d. to 2s. per gal. **GLASGOW:** Pale, 99/100%, 5s. to 5s. 6d. per gal.; pale, 97/99%, 4s. 6d. to 4s. 10d.; dark, 97/99%, 4s. 3d. to 4s. 6d.; high boiling acids, 2s. to 2s. 6d. American specification, 3s. 9d. to 4s. **MANCHESTER:** Pale, 99/100%, 3s.

NAPHTHA.—Solvent, 90/160, 1s. 6d. to 1s. 7d. per gal.; solvent, 95/160%, 1s. 7d. to 1s. 8d., naked at works; heavy 90/190%, 1s. 1d. to 1s. 3d. per gal., naked at works, according to quantity. **GLASGOW:** Crude, 6½d. to 7½d. per gal.; 90%, 160, 1s. 5d. to 1s. 6d.; 90%, 190, 1s. 1d. to 1s. 3d.

NAPHTHALENE.—Crude, whizzed or hot pressed, £5 5s. to £6 5s. per ton; purified crystals, £14 per ton in 2-cwt. bags. **LONDON:** Fire lighter quality, £5 10s. to £7 per ton. **GLASGOW:** Fire lighter, crude, £6 to £7 per ton (bags free).

MANCHESTER: Refined, £15 per ton f.o.b.

PITCH.—Medium, soft, 33s. per ton, f.o.b. **MANCHESTER:** 32s. 6d. f.o.b., East Coast. **GLASGOW:** f.o.b. **GLASGOW:** 35s. to 37s. per ton; in bulk for home trade, 35s.

PYRIDINE.—90/140%, 13s. 6d. to 15s. per gal.; 90/160%, 10s. 6d. to 13s. 3d. per gal.; 90/180%, 3s. 3d. to 4s. per gal. f.o.b. **GLASGOW:** 90% 140, 10s. to 12s. per gal.; 90% 160, 9s. to 10s.; 90% 180, 2s. 6d. to 3s. **MANCHESTER:** 10s. 6d. to 12s. per gal.

TOLUOL.—90%, 1s. 10d. per gal.; pure, 2s. 2d. **GLASGOW:** 90%, 120, 1s. 10d. to 2s. 1d. per gal.

XYLOL.—Commercial, 1s. 11d. to 2s. per gal.; pure, 2s. 3d. to 2s. 3½d. **GLASGOW:** Commercial, 2s. to 2s. 1d. per gal.

Wood Distillation Products

CALCIUM ACETATE.—Brown, £7 10s. to £8 per ton; grey, £9 10s. to £10. **MANCHESTER:** Brown, £9 10s.; grey, £11 10s.

METHYL ACETONE.—40.50%, £35 to £40 per ton.

WOOD CREOSOTE.—Unrefined, 4d. to 6d. per gal., according to boiling range.

WOOD NAPHTHA.—Miscible.—3s. 3d. to 3s. 6d. per gal.; solvum, 3s. 6d. to 3s. 9d. per gal.

WOOD TAR.—£2 to £8 per ton, according to quality.

Intermediates and Dyes

ANILINE OIL.—Spot, 8d. per lb., drums extra, d/d buyer's works.

ANILINE SALTS.—Spot, 8d. per lb. d/d buyer's works, casks free.

BENZIDINE.—HCl.—2s. 7½d. per lb., 100% as base, in casks.

BENZOIC ACID.—1914 B.P. (ex toluol).—1s. 11½d. per lb. d/d buyer's works.

m-CRESOL.—99/100%.—1s. 8d. to 1s. 9d. per lb. in ton lots.

o-CRESOL.—30/31° C.—8½d. to 7½d. per lb. in 1-ton lots.

p-CRESOL.—34.5° C.—1s. 7d. to 1s. 8d. per lb. in ton lots.

DICHLORANILINE.—2s. 1½d. to 2s. 5½d. per lb.

DIMETHYLANILINE.—Spot, 1s. 7½d. per lb., package extra.

DINITROBENZENE.—8½d. per lb.

DINITROCHLOROBENZENE.—Solid.—£79 5s. per ton.

DINITROTOLUENE.—48/50° C., 9½d. per lb.; 66/68° C., 11d.

DIPHENYLAMINE.—Spot, 2s. 2d. per lb., d/d buyer's works.

GAMMA ACID.—Spot, 4s. 4½d. per lb., 100% d/d buyer's works.

H ACID.—Spot, 2s. 7d. per lb.; 100% d/d buyer's works.

NAPHTHIONIC ACID.—1s. 10d. per lb.

β-NAPHTHOL.—£97 per ton; flake, £94 8s. per ton.

α-NAPHTHYLAMINE.—Lumps, 1s. 1d. per lb.

β-NAPHTHYLAMINE.—Spot, 3s. per lb.; d/d buyer's works.

NEVILLE AND WINTNER'S ACID.—Spot, 3s. 3½d. per lb., 100%.

o-NITRANILINE.—4s. 3½d. per lb.

m-NITRANILINE.—Spot, 2s. 10d. per lb. d/d buyer's works.

p-NITRANILINE.—Spot, 1s. 10d. to 2s. 3½d. per lb. d/d buyer's works.

NITROBENZENE.—Spot, 4½d. to 5d. per lb., in 90-gal. drums, drums extra. 1-ton lots d/d buyer's works.

NITRONAPHTHALENE.—10½d. per lb.; P.G., 1s. 0½d. per lb.

SODIUM NAPHTHIONATE.—Spot, 1s. 11d. per lb.; 100% d/d buyer's works.

SULPHANILIC ACID.—Spot, 8½d. per lb., 100%, d/d buyer's works.

o-TOLUIDINE.—11½d. per lb., in 8/10-cwt. drums, drums extra.

p-TOLUIDINE.—2s. per lb., in casks.

m-XYLIDINE ACETATE.—4s. 8d. per lb., 100%.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

Mortgages and Charges

(Note.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every company shall, in making its Annual Summary, specify the total amount of debt due from the company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.)

BABBITT PRODUCTS, LTD., London, N.W., soap manufacturers, etc. (M., 7/5/38.) April 25, £450 debentures, part of £5,000 already registered.

BLOOMDALE CHINA CLAY CO., LTD., London, E.C. (M., 7/5/38.) April 22, £2,000 debenture to Wengers, Ltd.; general charge. *—, January 4, 1938.

ELECTRO-ALLOYS, LTD., London, W. (M., 7/5/38.) April 21, £200 debentures, part of a series already registered. * Nil. Sept. 14, 1937.

HULTON SOAP AND CHEMICAL CO., LTD., Little Hulton. (M., 7/5/38.) April 23, £1,000 debenture, to Acme Soap Co., Ltd.; general charge. * Nil. Oct. 29, 1937.

Declaration of Solvency Filed

PEACHEY PROCESS CO., LTD., London, E.C. (D.S.F., 7/5/38.) Rubber vulcanisers. April 19.

Company News

The International Nickel Co., of Canada, have declared a dividend of 50 cents per share on the Common stock. This is the same as for the previous quarter.

Stevenson and Howell show a net profit for 1937 of £47,426 (£40,705). A final dividend of 12 per cent. on the ordinary shares is declared, making 17 per cent., free of tax (same).

Eno Proprietaries announce a final dividend of 7 per cent., less tax on the ordinary shares, making 11 per cent. for the year (13 per cent. for 1936.)

The Barrow Hematite Steel Co. show net profits which have risen by £67,838 to £100,158. Gross profits increased from £83,050 to £135,148.

London Moulders, Ltd., of India Works, Exhibition Grounds, Wembley, Middlesex, have changed their name to Wembley Resinoids, Ltd.

Rona Laboratories, Ltd., manufacturers of pharmaceutical preparations, 11 New Court, Lincoln's Inn, W.C.2, have increased their nominal capital by the addition of £1,000, in £1 ordinary shares, beyond the registered capital of £2,000.

J. C. Gilbert, Ltd., manufacturers of and dealers in radium and other mineral substances, etc., 74/5 Cheapside, E.C.2, have increased their nominal capital by the addition of £4,900 in £1 ordinary shares, beyond the registered capital of £100.

The British Oxygen Co. has declared a final dividend of 10 per cent., compared with 8 per cent. a year ago, and is thus distributing a total of 17 per cent. for 1937, compared with 15 per cent. for each of the previous three years.

Beechams Pills, Ltd., announce a profit of £600,908, an increase of £59,498 over the previous year. A final dividend on the deferred of 47½ per cent., making a total of 85 per cent., is recommended. This is 25 per cent. more than was paid in the previous year.

Treforest Chemical Company, Ltd., 5 Devonshire Square, Bishopsgate, E.C.2, have increased their nominal capital by the addition of £49,900 in £1 ordinary shares beyond the registered capital of £100.

Brotherton and Co., Ltd., City Chambers, Leeds, 1, have increased their nominal capital by the addition of £750,000 beyond the registered capital of £2,000,000. The additional capital is divided into 750,000 preference and/or ordinary shares of £1.

The British Match Corporation, Ltd., is maintaining its ordinary dividend for the year to April 30, 1938, at 7½ per cent., by the payment of a final of 5 per cent., less tax. The usual half-yearly dividend is also announced on the 5½ per cent. preference, less tax.

Wm. Butler & Co. (Bristol), coal tar distillers, etc., announce profits of £38,268 (45,983); deduct depreciation £9,032 (£9,331), directors' fees £1,173 (£1,200), income-tax and N.D.C. £3,333 (£1,413), leaving net profit £24,730 (34,040); to preference dividend £6,576, ordinary dividend 7½ per cent., less tax (same), to reserve, nil (£5,000); forward £13,197 (£13,523).

New Companies Registered

Universal Fertiliser Co., Ltd. 339,551. Private company. Capital, £300 in 300 shares of £1 each. To carry on the business of manufacturers and importers of and dealers in fertilisers, manures and animal feeding stuffs of all kinds, manufacturing chemists, etc. Subscribers: Geo. Armitage, 11 Moor View Drive, Cottingley, near Bingley; Harold Rayner.

W. A. Mitchell and Smith, Ltd. 339,626.—Private company. Capital, £4,000 in 1,000 6 per cent. cumulative preference and 3,000 ordinary shares of £1 each. To carry on the business of manufacturers of and wholesale and retail dealers in chemicals, resins, oils, driers, pigments, paint mediums and varnishes, etc. Directors: Wm. A. Mitchell, 30 Presburg Road, New Malden, Surrey; Wm. G. Mitchell, Registered office: Ravenspring Works, Western Road, Mitcham, Surrey.

Chemical Colloids Corporation, Ltd. 339,565.—Private company. Capital, £1,000 in 800 6 per cent. preference shares of £1, and 2,000 ordinary shares of 2s. To carry on the business of manufacturers, distributors, factors, wholesalers and retailers of colloidal products and chemical products of all kinds, etc. Subscribers: Arthur H. Young, 331 Bowes Road, New Southgate, N.11; Harold W. Stammers. Registered Office: 120/122 Victoria Street, Westminster, S.W.1.

Titan Soap Company (Dublin), Ltd. 9,609.—Private company. Capital, £100 in 100 shares of £1 each. To carry on the business of dealers in and brokers, manufacturers and refiners of oils, tallow, greases, lard and its compounds, etc. Directors: Harold Ethelwald Crean, St. Annes, Cowper Drive, Rathmines, Dublin; Ernest Hall; Denis McCullagh.

New Detergents, Ltd. 339,391.—Private company. Capital, £100 in 2,000 shares of 1s. each. To carry on the business of manufacturers of and dealers in soap and washing materials, oils, greases, oleaginous and saponaceous substances, perfumes, unguents, salves, powders, chemicals, drugs, toilet requisites, paper, cardboard, boxes, bottles, tins, etc. Subscribers: W. L. Wightman, 19-21 Moorgate, E.C.2; Bertram L. Baylis.

Chema Manufacturing Company, Ltd. 339,859.—Private company. Capital, £500 in 500 shares of £1 each. Objects: To carry on the business of manufacturers of and dealers in chemicals, drugs, medicines, disinfectants, fertilisers, salts, acids, oils, isinglass, colours, glues, paints, pigments, varnishes and compositions, gas masks and air raid precaution equipment, blasting material, fuses and explosive containers, arms and weapons, etc. Subscribers: Walter E. Wolf, 1 and 2 Finchbury Square, E.C.2; Leslie Cork.

Willington Medicals, Ltd. 339,801.—Private company. Capital, £5,000 in 5,000 shares of £1 each. To carry on the business of manufacturing chemists, druggists, dyers, salters, etc. Directors: Albert Fletcher, Lyndhurst, Seaford Road, Lytham, Lancs; Gilbert R. Fletcher, Registered office: Limes Place, West Croydon.

Beugger Chemicals, Ltd. 339,805.—Private company. Capital, £2,500 in 2,500 shares of £1 each. To carry on business as manufacturers of and dealers in chemicals, essences, essential oils, synthetic products, etc. Directors: K. John A. Beugger, The Bungalow, Gillingham Green, Gillingham, Kent; Eric A. Jackaman.

H. E. J. Green, Ltd. 339,663.—Private company. Capital, £1,000 in 1,000 shares of £1 each. To carry on the business of manufacturers of and dealers in chemicals, gas, drugs, medicines, plasters, disinfectants, spraying fluids, soaps, oils, colours, etc. Subscribers: Herbert E. J. Green, "Holderness," Great Nelmcs, Hornchurch, Essex; Ernest E. Boyles; Herbert E. J. Green.

Limited Partnership

Elborne and Ellington. 1,362.—Analytical and consulting chemists, The Laboratory, 16 Park Road, Peterborough. General partner: Frederick Ellington, 16 Park Road, Peterborough. Limited partner: Thomas McLachlan 10a Featherstone Buildings, High Holborn, W.C., contributing £100 represented by apparatus, chemicals and books.

Chemical Trade Inquiries

The following trade inquiries are abstracted from the "Board of Trade Journal." Names and addresses may be obtained from the Department of Overseas Trade (Development and Intelligence), 35 Old Queen Street, London, S.W.1 (quote reference number).

Denmark.—A firm of agents established at Copenhagen wishes to obtain the representation of United Kingdom suppliers of precipitated chalk in powder; nicotine (80 per cent.); bromides, for the whole of Denmark. (Ref. No. 299.)

Portugal.—A firm of agents established at Oporto wishes to obtain the representation, on a commission basis, of United Kingdom manufacturers of pig iron for the north of Portugal only. (Ref. No. 305.)

Egypt.—A firm in Cairo wishes to obtain the representation, on a commission basis, of United Kingdom manufacturers of chemical products. (Ref. No. 306.)

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